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COMING NEXT MONTH

MAN ON THE MOON—soon? When he arrives there he'll probably be wearing this unusual suit featured in the March MI. On more down-to-earth topics, next month's issue will introduce you to a 23-year-old stock car driver who earned $35,000 last year! And it will tell you how to get in on the big money by ringing doorbells! It's on sale February 21st.

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FEBRUARY, 1961

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And especially is this true of the lovely valleys surrounding **Albuquerque**, the queen of New Mexico. This exciting city is bursting at the seams and homes are spilling out in all directions. Albuquerque has become America's "7th fastest growing city" — and is picking up speed at an astounding tempo.

Astounding? Please consider: In 1940 Albuquerque had less than 36,000 people. By 1950 it had soared to 97,000. And in the last 10 years it has rocketed to more than 260,000!

There are so **many** reasons for this fantastic rate of growth. Nowhere in America is there land more **beautiful** than the rich valleys that rim Albuquerque. The **climate** is possibly without equal in all of America — a summertime of balmy sunny days* and bracing nights — blanket-sleeping nights; and in the winter equally sunny days* — shirt-sleeve weather. **Health?** This is a region whose mildness and purity of climate have given new life to people from all parts of our land — where, in respiratory ailments alone, thousands of cures have been miraculously achieved by the mild weather, the dry air, the abundant sunshine, the low humidity. In the words of the Encyclopedia Brittanica the Albuquerque region is **"a health resort"!** And what about **sports, entertainment, activities, opportunity?** In the lofty close-by mountains are fishing, swimming, hunting. Skiers wear shorts. Golf is played the year 'round. Albuquerque itself is crammed with magnificent shops, theatres, churches, schools—including the University of New Mexico with 7000 enrolled students, bright new college buildings and modern football stadium. Albuquerque has the 5th busiest airport in the United States. Its industry and employment potential are boundless. Its 3 television channels and 9 radio stations, its opportunities in land ownership, jobs, small business; its sunniness, its freshness and sparkle — all of these mark the personality of a great city.

The wonder is not that Albuquerque is growing so rapidly. The wonder is that one can still buy a lovely piece of land close to the city at so low a price as $395 an acre! All you have to do is to take a look at the six cities which in all of America have grown even faster than Albuquerque. **What would you have to pay for an acre of comparable land only 39 miles from their shops and theaters?**

(THESE FIGURES INCLUDE OUTSIDE CENTRAL CITY)

	Population	Rate of Rise 1950-1960	Cost Per Acre of Comparable Land 39 Miles from Downtown
1. San Jose, Calif.	639,615	120.1%	$2,500 — $ 5,000
2. Phoenix, Arizona	652,032	96.5	$3,500 — $ 7,000
3. Tucson, Arizona	262,139	85.6	$1,500 — $ 3,000
4. Miami, Florida	917,851	85.4	$5,000 — $10,000
5. Sacramento, Cal.	500,719	80.7	$2,000
6. San Diego, Cal.	1,003,522	80.2	$4,000 — $ 8,000
7. Albuquerque, N. M.	260,318	78.7	**$395 (Valley of The Estancia Ranchettes)**

** Last year for example, there were only 8 days that were not sunny.*

These statistics are eye-openers, aren't they? **Yet real estate men are saying that the prices you have just read will soon apply to the Albuquerque region!**

And as lovely and luxuriant an area as Albuquerque can boast is **The Valley of the Estancia Ranchettes.** Rimmed by mountains, lying flush alongside the most important highway in the West, **Route 66,** and only 39 miles from Albuquerque, **The Valley of the Estancia Ranchettes** is the essence of the enchanting Southwest. Please read this carefully! **The Valley of the Estancia Ranchettes** are not barren desert tracts. **They are lush and green!** Water waits to be tapped. The soil is so fertile as to bear fruit trees and truck gardens. Our Route 66 neighbors frame the landscape with their low modern ranchettes, homes, motels. Our next door neighbor is the famed $200,000 Longhorn Museum of the Old West . . . Oh yes, this is a very lovely land.

As our headline says, an acre in our beautiful VALLEY OF THE ESTANCIA RANCHETTES costs **$395 complete!** And the terms are $10 down and $10 a month per acre. That's it — no extras, no hidden additional costs. You may reserve as many acres as you wish. AND YOU TAKE NO RISK IN SENDING YOUR $10 TO RESERVE YOUR ONE ACRE RANCHETTE SITE. Your $10 reserves an acre for you, but you have the unqualified right to change your mind. As soon as we receive your reservation we will send you your Purchase Agreement and Property Owner's Kit. The package will show you exactly where your property is and will include full maps, photographs and complete information about your property. Other maps will show you nearby Arizona — even old Mexico itself, 250 miles away. You may have a full 30 day period to go through this fascinating portfolio, check our references, talk it over with your family. If during that time you should wish to change your mind (and you don't have to give a reason either) your reservation deposit will be **instantly refunded.** (ALBUQUERQUE BANK REFERENCES).

Experienced realtors think that the Albuquerque area presents the most exciting acreage buy in America. On the outskirts of the city, land is now going for $5000 to $6000 an acre. One day soon the Valley of the Estancia Ranchettes could be a suburb of Albuquerque. Act now. You'll be forever grateful that you did.

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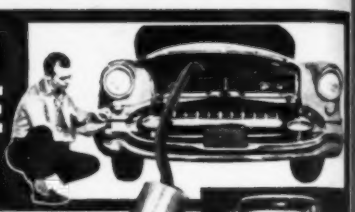

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Profits That Lie Hidden in America's Mountain of Broken Electrical Appliances

By J. M. Smith *President, National Radio Institute*

And I mean profits for you — no matter who you are, where you live, or what you are doing now. Do you realize that there are over 400 million electrical appliances in the homes of America today? So it's no wonder that men who know how to service them properly are making $3 to $5 an hour — in spare time or full time! I'd like to send you a Free Book telling how you can quickly and easily get into this profitable field.

THE COMING OF THE AUTO created a multi-million dollar service industry, the auto repair business. Now the same thing is happening in the electrical appliance field. But with this important difference: anybody with a few simple tools can get started in appliance repair work. No big investment or expensive equipment is needed.

The appliance repair business is booming — because the *sale* of appliances is booming. One thing naturally follows the other. In addition to the 400,000,000 appliances *already* sold, this year alone will see sales of 76 million *new* appliances. For example, 4,750,000 new coffee makers, almost 2,000,000 new room air conditioners, 1,425,000 new clothes dryers. A nice steady income awaits the man who can service appliances like these. And I want to tell you why that man can be *you* — even if you don't know a volt from an ampere now.

A Few Examples of What I Mean

Now here's a report from Earl Reid, of Thompson, Ohio: "In one month I took in approximately $648 of which $510 was clear. I work only part time." And, to take a big jump out to California, here's one from J. G. Stinson, of Long Beach: "I have opened up a small repair shop. At present I am operating the shop on a spare time basis — but the way business is growing it will be a very short time before I will devote my full time to it."

Don't worry about how little you may now know about repair work. What John D. Pettis, of Bradley, Illinois wrote to me is this: "I had practically no knowledge of any kind of repair work. Now I am busy almost all my spare time and my day off — and have more and more repair work coming in all along. I have my shop in my basement."

We Tell You Everything You Need to Know

If you'd like to get started in this fascinating, profitable, rapidly growing field — let us give you the home training you need. Here's an excellent opportunity to build up "a business of your own" without big investment — open up an appliance repair shop, become independent. Or you may prefer to keep your present job, turn your spare time into extra money.

You can handle this work anywhere — in a corner of your basement or garage, even on your kitchen table. No technical experience, or higher education is necessary. We'll train you at home, in your spare time, using methods proven successful for over 45 years. We start from scratch — *tell* you in plain English, and *show* you in clear pictures — everything you need to know. And, you will be glad to know, your training will cost you less than 20¢ a day.

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I'll also send you a Free Sample Lesson. It shows how simple and clearly illustrated our instruction is — how it can quickly prepare you for a profitable future in this big field. Just mail coupon, letter, or postcard to me: *Mr. J. M. Smith, President, National Radio Institute, Dept. CB1, Washington 16, D.C.* (No obligation, of course — and no salesman will call on you.)

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Tell me how I can "cash in" on the "Electrical Appliance Boom." Send me your illustrated FREE BOOK that outlines the whole NRI Course, tells what opportunities are open to me, answers my questions, describes success of other students, and much more. Also send me the FREE SAMPLE LESSON so I can see how clear and easy your instructions are. I am particularly interested in:

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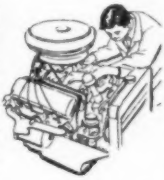

Hundreds of thousands of new cars are being equipped with air conditioners. Auto dealers are advertising for skilled refrigeration mechanics, offering premium pay, to set up service departments. Or, you can go in business for yourself, and contract with auto agencies to do this type of installation and repair. You can make big profits either way.

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After assembling and working projects with your unit, you may build an air conditioner, refrigerator, freezer, or milk cooler. *All parts and tools are sent without extra charge*—they are yours to use and keep.

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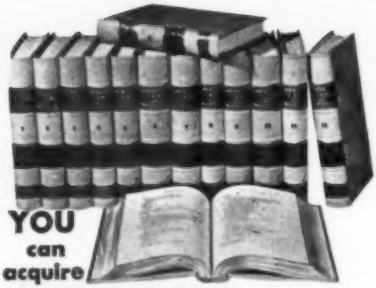

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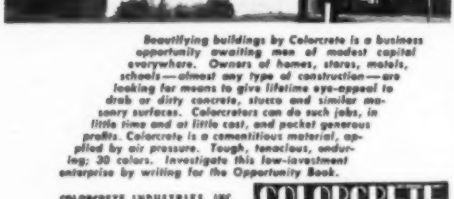

Beautifying buildings by Colorcrete is a business opportunity awaiting men of modest capital everywhere. Owners of homes, stores, motels, schools—almost any type of construction—are looking for means to give lifetime eye-appeal to drab or dirty concrete, stucco and similar masonry surfaces. Colorcretors can do such jobs, in little time and at little cost, and pocket generous profits. Colorcrete is a cementitious material, applied by air pressure. Tough, tenacious, enduring; 30 colors. Investigate this low-investment enterprise by writing for the Opportunity Book.

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"I call it a bad day if I don't make $25 before noon"

(This chair alone brought $4.50 with twenty-five minutes work and 32¢ in cleaning materials.)

by Harold Holmes

"Just a few months ago I made the big move. I gave up my job and started spending all my time in the little business I had been running on the side. It wasn't an easy decision, but, now I'm tickled to death I made it. Not just because I'm my own boss or because I have an excellent chance of making over $10,000 this year. It goes deeper than that.

"You see, this idea has caught on like wildfire in my town. Not a day goes by without my phone ringing with women calling for appointments. The beauty of it is that once a woman becomes my customer, she calls back year after year. Not only that, she tells her friends, too, and they call me. Before I know it I'm swamped with work. (And at $7.50 an hour net profit it doesn't take long before my bank account is really mushrooming.)

"Funny thing, but back last year, before I started, I never realized the money there was in this business waiting for someone to come along and collect it. Just think: every house in town has furniture and most have rugs or carpeting. I concentrate on just the better homes and have more work than I can handle. You know why? Because women are fussy about their furnishings. Can't stand to see them dirty. That's why they call me over every year.

"The average job is worth $25.00 to me and takes a little over 2 hours. Out of this, after paying for materials, advertising and other expenses I net about $15.00 clear profit. This means I need just 3 jobs a day to clear $11,250.00 in a year. Frankly, since this will be my first full-time year I'll be glad to hit the $10,000 mark. But after that this business should grow larger each year until I have to hire men to help me handle the business.

Personally Trained

"Believe me there's nothing magic about it. I didn't know a thing about cleaning home furnishings before I became a Duraclean dealer. But after my application was accepted, I was trained in their factory-training school and by a dealer in a nearby town. I was astonished by the short time it took me to become an expert. Actually, much of the credit must go to the Duraclean process, which is so safe it has earned the Parents' Magazine Seal.

"The portable machine you see is just one of the electrical machines I use. It manufactures a light aerated foam with a peculiar action chemists call 'peptizing'. It means that instead of being scrubbed deep into the fabric, dirt is gently ABSORBED by the foam, leaving the fabric clean all the way down. Women can't believe their eyes when they see how it works. Colors appear bright again, and rug pile unmats and rises like new. I don't have to soak rugs or upholstery to get them clean, which ends the problem of shrinkage, and means the furnishings can be used again the very same day. This alone has brought me a lot of customers.

"As a Duraclean dealer I make money with four other services, too: ***Duraproof*** . . which makes furnishings immune to moth and carpet beetle damage (it's backed by a six year warranty). ***Durashield,*** a brand new dirt-delaying treatment. It coats fabrics with an invisible film that keeps dirt out. ***Duraguard,*** another new service, flameproofs draperies, upholstery and carpets to reduce charring and the tendency of fires to flame up. And ***Spotcraft,*** which consists of special chemical products for removing stubborn spots and stains. On jobs where I perform all five services, I multiply profits!

"One of the nicest things about being a Duraclean dealer is that I get continuous help from Duraclean Headquarters. My services are nationally-advertised in famous magazines like McCall's, House Beautiful and many others. I also get a complete advertising kit prepared by experts. (There's even a musical commercial!) I get a monthly magazine full of methods to build business and I can meet with other dealers at Duraclean conventions. I'm also backed by insurance. In fact there are over 25 regular services I get under their unique System.

No Shop Needed

"Maybe you too would like to break away from your job and make a fresh start in a business of your own. Do you need a shop? Certainly not. I operate from home. Need a lot of money to start? Not at all. Duraclean finances reliable men, after a moderate down payment, and furnishes enough supplies to return your TOTAL investment.

"You get everything you need: equipment, supplies, advertising matter, personal training, and regular help from Headquarters. To get all the details, fill out the coupon. There's no obligation and you can *decide for yourself*. I'll say one thing: if you DO become a Duraclean dealer, you'll be glad the rest of your life that you took time today to write."

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Desk 1-172 839 Waukegan Avenue, Deerfield, Ill.

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Make BIG Money! With our easily operated, highly efficient wall washer, G. H. Jones made $1200 on one school job. E. L. Goss took in more than $10,000 in one year. E. C. Taber wrote, "*I made $400 gross in two weeks.*" And no wonder...this machine washes walls 6 times faster and better than by hand—with no mess...no drop cloths.

Your Money-Making Opportunity • We want more men to go into this profitable business for themselves and enjoy independence—freedom from layoffs and bosses. Customers everywhere—homes, offices, schools, churches, hotels, etc. How much you earn depends largely on you. What you take in is mostly profit. No need to rent shop or office; operate from home. Start spare time until full time is justified.

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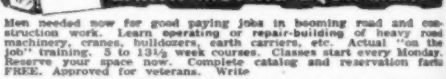

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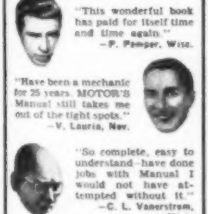

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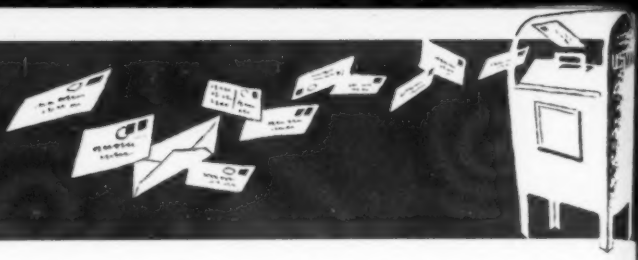
Dear Editor



Address mail to: Letters Editor, MECHANIX ILLUSTRATED, 67 West 44th Street, New York 36, N. Y.

● *Avid Autophile*

My late uncle in his lifetime owned no less than 47 cars, none of which were trucks or commercial vehicles. I claim this is a record!

Bert Timms
Bowness, Alberta

Top this, readers!

● *Help Wanted*

A letter to the editor in your June issue concerned the valve mechanism of the 1916 Enger automobile. This mechanism made it possible to operate the car's 12-cylinder engine as a six. Could you put me in touch with anyone who could give me some information about the Enger, particularly about its valve mechanism?

S. Santarsiero
1027 E. Jessamine St.
St. Paul 6, Minn.

● *Magic Sieve*

I recall my Latin teacher telling me that the Vestal Virgins, when their prestige was low and their status in question, could get off the hook by carrying a sieve of water home from the Tiber. I have also heard it said that there is a way to make a sieve (a real one, full of holes) carry water. Is this really possible and, if so, how?

Puzzled
Portland, Ore.

It is possible and this is how it's done: Dip a small-mesh sieve in melted paraffin, rap the edge of it to clear the holes of wax and let cool in such a way as not to scratch or remove any of the wax coating on the wires. Surface tension of the water against the paraffin will keep the sieve from leaking.

● *Mike Man*

Do I need to use a preamp with my GE table-model radio to operate a mike with a 100-foot cable?

Armand Viscosi
Methuen, Mass.

Yes, Armand, you probably do. However, in the May 1960 issue of ELECTRONICS ILLUSTRATED, *our sister publication, there are plans for a build-it-yourself transistorized mike that eliminates the need for a preamp. If interested, write to* ELECTRONICS ILLUSTRATED, *67 W. 44th St., New York 36, N. Y.*

● *Unhappy Bell Ringer*

My wife bought one of those Tapeswitch mats (November MI) that lies in front of the door and rings a bell inside the house when anybody steps on it. Now whenever I come home a little late after hoisting a few with the boys, that bell starts ringing and wakes the spouse who then unleashes one of her prohibitionist lectures on me. Who invented this front-porch stool pigeon, anyway?

Name Withheld
San Francisco, Calif.

A Mrs. Name Withheld of San Francisco, Calif.

● *Down-Under Joiner*

I am a joiner cabinetmaker, 45, and would like to correspond with someone in the U. S.

[*Continued on page* 22]

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Look what you get in the Course in Radio and Electronic Fundamentals

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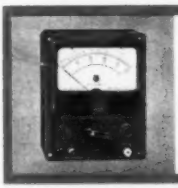
to build a Multimeter, AM Receiver and Signal Generator. Kits contain new parts for experiments, integrated so as to demonstrate what you learn in the lessons and to help you develop technical skills. Each kit is fun to put together!



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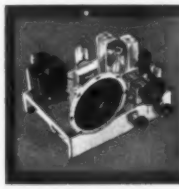
A sensitive precision measuring instrument you *build* and *use* on the job. Big 4½" meter with 50 microamp meter movement. 20,000 ohms-per-volt sensitivity d-c, 6,667 a-c.



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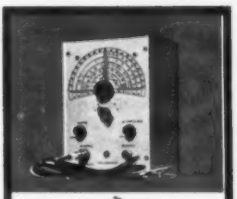
Have the satisfaction of building your own radio receiver with this high-quality 6-tube superheterodyne set. Big 5" speaker, fine tone!



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Name.....*Age*.....

Address.....

City.....*Zone*....*State*.....

EICO, Dept. MI-2, 3300 N. Blvd., L.I.C. 1, N. Y.

Dear Editor

[*Continued from page* 20]

who is interested in woodworking as a hobby. I would be grateful if you could include this request in your letters column.

Fred Boardman
2 Princes Highway
2, Commonwealth Cottages
Unanderra, N.S.W.
Australia

• *Uncle Tom's Taster?*

Do my eyes deceive me or is that caricature of a tooth-picking nobleman on page 82 (Do-It-Yourself Assassins, November MI) none other than your own automotive expert, Tom McCahill?

Pete Brownlie
New York, N. Y.

That's Uncle Tom in his tilting costume. His expiring taste-tester, a junior editor, is really only faking it.

• *Dental Dipso*

My husband likes his eggs cooked in beer, his eggnog made with brandy and his candy rum flavored. Now he's read about whiskey-flavored toothpaste in a story called Everything's Crazy But The Profits (November MI) and he wants me to give him a case of the stuff for his birthday. Should I?

Mrs. S. P.
Washington, D. C.

Of coursh!

• *Correction*

An item in Science Shorties (August MI) describes the first manned aircraft to fly over 100,000 ft. as the F-104. Actually, the Bell X-2 first flew over 100,000 ft. The F-104 was the first manned *jet* aircraft to fly over 100,000 ft.

Bruce Siegelbaum
Baltimore, Md.

Reader Siegelbaum is correct. •

"I Earn $25.00 per Hour"...* Spray with Suede!

$1 Worth of Materials Brings You $18—You pocket the profits!

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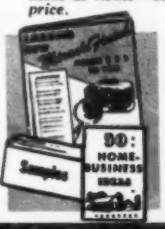

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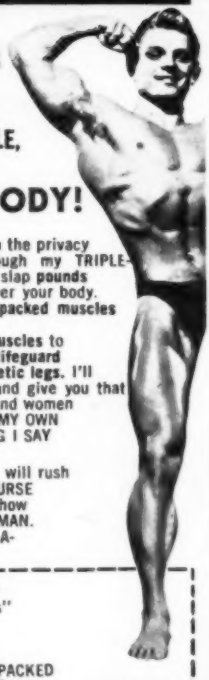

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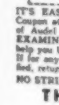

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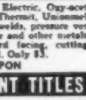

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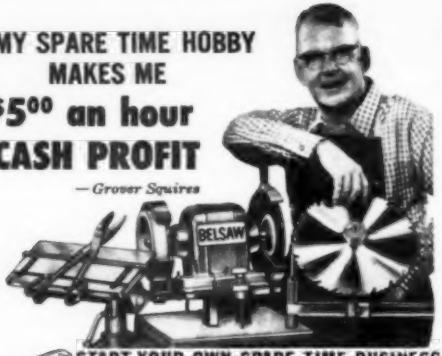

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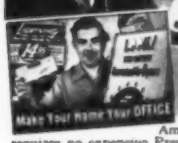

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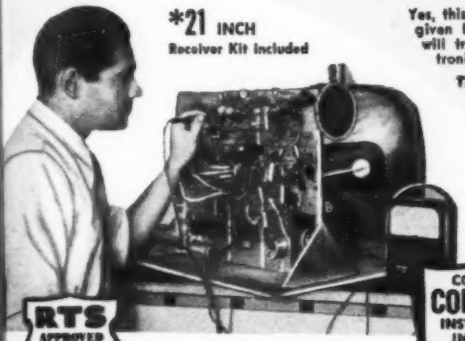

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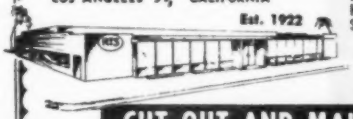

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Invention Clinic

Joseph H. Kraus

In this column each month Mr. Kraus will answer as many letters as space permits on those subjects he feels to be of widest general interest. Time does not allow him to reply to any letters except those printed here. Address your questions to the Invention Clinic, *Mechanix Illustrated*, 67 West 44 St., New York 36, N. Y.

Home Sprinkler System

E. H. Allen of Bridgewater, Va., outlines an invisible fire sprinkler head designed especially for use in homes. He feels that the unsightly appearance of conventional sprinklers is the reason why such systems are not found in the average small home. Should he try for a patent?

It is the installation cost, not unsightliness, which has kept the sprinkler system out of homes. This cost is four times greater if the installation is to be made after a home has been built. Yet if you give this some thought, you could develop a system which would not require tearing up floors or ceilings. Your suggestion for a sprinkler head seems good enough to justify the expense of a patent search. Before applying for a patent you should determine what you intend to do with it after it is issued. You might start by cost accounting a system with your sprinklers.

Shift Current

Roger Neilson of Mastic Beach, L. I., N. Y., has developed what he calls "shift current." This is claimed to be a conversion of DC which will allow for the use of AC equipment. He claims higher speeds in motors, higher torque, more rapid heating of heaters, sharper TV pictures, etc. What are the merits? Would some laboratory further the experiments before a patent application is made?

You cited claims of merit so you know part of the answer to your first question. But you gave no explanation of how you produce what you call "shift current." What, for example, is the wave pattern on the oscilloscope? There are dozens of different pieces of equipment which will convert DC to a useful form of AC. If you have something different, better, and original, you should apply for a patent. The laboratory research work can be tried after your basic patent has been granted.

Prison Bar Security

Edwin Woodman of St. Petersburg, Fla., has developed a system which will sound a signal when a prison bar is cut through. He suggests its use also for banks, stores and other places where iron bars are used for protective purposes. He thinks this is foolproof. How do we feel about it?

Your more expensive and somewhat more complicated system will do nothing that cannot be accomplished by simple, well-known electrical circuitry. You weaken the bars, then require that the system be kept under constant pressure. Any sharp kink in the pressure supply line will render the system inoperative; a drop in the pressure will give a faulty signal. Maybe those to whom you sent this idea also saw its shortcomings. Forget it.

Side-Opening Cans

Mrs. Alice Cotheran of Jacksonville, Fla.

[*Continued on page* 31]

INVENTOR'S TIP OF THE MONTH

Someone should design and market "deadly fingers"—a rubber glove or rubber fingers made so that they can deposit a killing dose of quick-drying poison on leaves of plants touched with the fingers. A reservoir attached to the wrist or arm could keep the fingers supplied with the solution, preferably containing a color trace to tell which plants have been treated. Only those plants touched with the fingers would die. What a boon this would be to areas troubled with bindweed and poison ivy.

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FABRICATES PRODUCTS FOR SALE.

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New York, March 17 – Small table-top device makes over 15,000 different items now sold in stores.

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MOULDS HUNDREDS OF PROFITABLE ITEMS

WOULD YOU RENT YOUR KITCHEN TABLE FOR $500 A MONTH? Well, I can't really pay you $500 a month for the rent of a table, but I *can* give you an opportunity to *make* it – in the same small space – with a mechanical device so fantastic you'll hardly believe your own eyes when you see it operate. A truly *amazing development* that may settle your money problems – bring up to $10 an hour or more for your spare time – give *everyone in your family* a chance to make extra cash. Even grandparents and teen-agers can get in on the fun and the profits – to build up the family income beyond anything you have ever imagined!

NEW TABLE-TOP Plasti-Form MACHINE PUTS YOU IN A BILLION $$$ BUSINESS *Almost Over Night*

I'm not showing you a picture of my incredible Plasti-Form Machine, because all you'd see is a metal box. It's *what's inside that counts* – an invention so revolutionary (yet so simple) that engineers tell me the patent may be worth *a million dollars!* But I don't want to sell it. I prefer to *share my good fortune* with others who will use the machine – just as I have – to get into a home business of virtually *unlimited profits*. Wherever you live – big city, small town, or farm – and whatever your age or education – I'll show you how to make *more money* in *less time* than you ever dared to hope for. Money for a new car, the vacation trips you've always planned and could never afford, improvements in your home, an educational fund for your children. All these and *more*, can now be yours – through the magic of this amazing Plasti-Form machine.

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Yes–for the very first time, you can manufacture–on a small table in kitchen, garage, service porch, basement, or spare bedroom – products that formerly required thousands of dollars investment in machines and dies. By avoiding this expense, you can **undersell** the big factory – can make small quantities (as well as large) of **many** items on this new, exciting Home-Business Machine.

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My little table-top manufacturing device does more than any *dozen* machines you can name. Given a model of almost any small item, it will mould *hundreds* or *thousands more* in the exact size and shape – for only pennies each, even if the original product cost $5 to $10 or even more. It will laminate *anything you care to name* in a permanent plastic seal – in any color material of the rainbow, including bronze, chrome, or silver plate. Bronzing of baby shoes can be done for less than ¼ the present cost by other methods (now outmoded!) Wall plaques costing $15 in the stores can be duplicated in the Plasti-Form machine for a dime. Plastic dishes, ash trays, book ends, piggy banks, toys, costume jewelry – in all, I estimate there are over 15,000 items you can make to sell *way under the market price* and still make a *tremendous profit*.

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Invention Clinic

[*Continued from page 28*]

asks about food cans that may be opened from the side instead of at the top. In this way particles of tin and dust would not fall into the can. How about this?

Rather messy to have liquid contents run down the sides of the containers. However, side opening cans are available. A number of different brands of coffee are sold in them.

Sectional Pontoons

William E. Park of Kingston, Ga., sends diagrams and descriptions of a pontoon which may be increased in size by the addition of sections. Does this have possibilities? How should he check to learn if he would be infringing on any patents?

Ask your patent attorney to report on a patent search. We recommend that you apply for a patent if the attorney's report is favorable. Filling the pontoons with plastic foam might give a greater margin of safety and at the same time permit the use of very thin walls. This might also bring down the cost and automatically provide closures for the ends, thus avoiding the need for end plugs. This item has many potential uses. •

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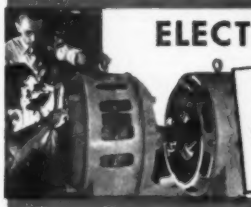

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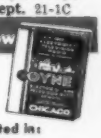

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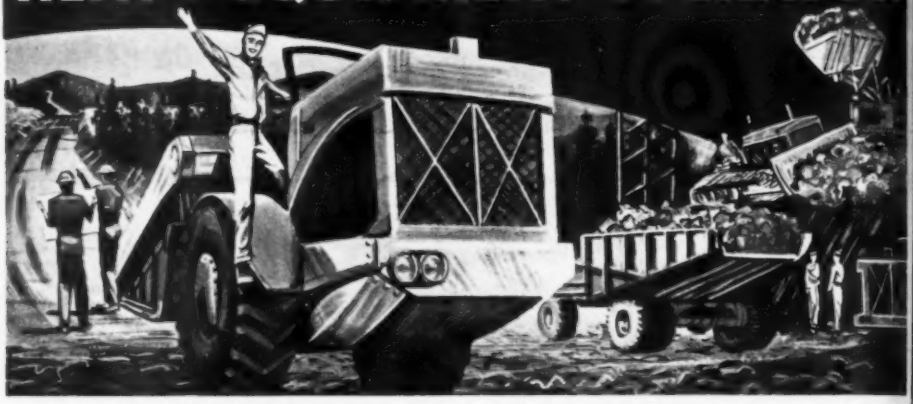

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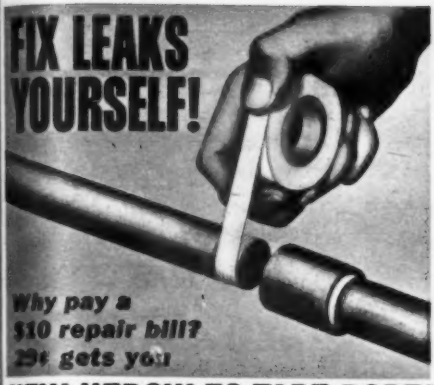

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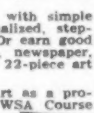

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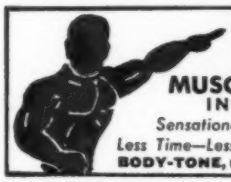

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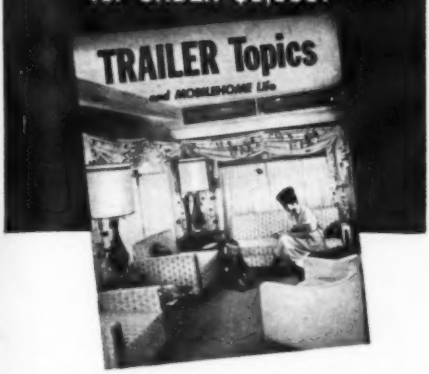

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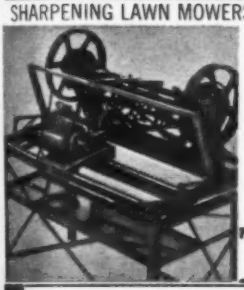

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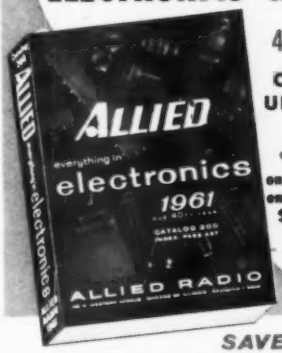

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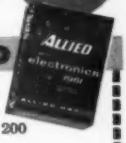

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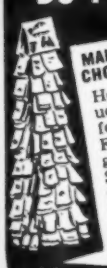

MAKE UP TO 2500% PROFIT CHOOSE FROM 100,000 ITEMS

Here are just a few products now being packaged for self service. Pencils, Foreign Stamps, Sun glasses, Harmonicas, Screws, Safety Pins, Combs, Fish Hooks, Marbles, Pet Foods, and hundreds more — some you may make yourself

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No personal selling. Our nation-wide sales force places your products in stores & services racks. We help you get products at below-wholesale prices through our own Central Purchasing Agency — will even *manufacture* new products *for* you. Simplest, easiest, fast-growing Home Business ever.

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3-WAY PROFITS You also learn Gift Wrapping and Contract Packaging (big demand by mfrs, distributors, stores, markets, etc.) Coupon brings FREE details.

FREE

HERE'S PROOF that Packaging means Big Profits for You!

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Balloons	3½¢	19¢
Fish Hooks	2¢	50¢

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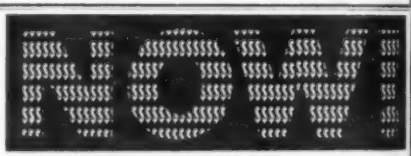

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BORROW $100 TO $600 By Mail. Quick, Easy, Private. No Co-Signers. Repay in 24 small monthly payments. For the amount you want write today to Dial Finance Co., 410 Kilpatrick Bldg., Dept. B-1, Omaha 2, Nebraska.

"RULE OTHERS with thoughts." (Telepathy.) Write: Clarion, Box 9309-S9, Chicago 90.

PROPERTY MAPPING our specialty. Free estimates. Write: Deed-Ettes, Mt. Pocono, Penna.

MEXICAN LAW. Attorney Ceniceros, Apto 79.—C. Juárez, Chih, Mex.

• • • REMAIL SERVICE

SECRET MAIL Address. $3 Month. Hedgpeth, Box 830, Alhambra 17, California.

REMAILS 25¢ EACH, $3.00 Monthly. Sedgwick, 1114 30th St., Newport News, Va.

• • • JEWELRY

NEW MONEYMAKING Costume and Shell Jewelry Designs, Instructions and Supply Catalog, 25¢. Modern Craft, Box 11088-X2, Saint Petersburg 33, Florida.

COSTUME JEWELRY Supplies, Settings, Rhinestone, etc. 88 page illustrated catalog. 30¢. Milady, Box 1328, G.P.O., N.Y.C.

• • • MINERALS, PRECIOUS STONES

ROCKHOUNDS—GEM Cutters—Jewelry Makers . . . new Free catalog—just off the press! Biggest supplier to hobbyists and craftsmen offers you tools, materials, equipment, introductory bargains and know-how. Free Catalog. Write Grieger's, Dept. C-4, 1633 E. Walnut, Pasadena, California.

• • • MISCELLANEOUS

NEED WORLDS Of Help? Borrow up to $600 for any purpose entirely by mail. Repay in 24 monthly payments. Write for free loan application: World Finance Co., 620 Symes Bldg., Dept. 11-T, Denver 2, Colo.

FREE WHOLESALE Catalogs! 250,000 Products . . . Tremendous Discounts! Econ-O-Mart, Whippany 8, N. J.

RARE, FANCY, Ornamental Chicks. Bantams, Ducklings, Goslings, Guineas, Turkeys, Capons. Free Catalog. Stromberg's, Fort Dodge 58, Iowa.

"WINEMAKING," "BEER, Ale Brewing." Illustrated. $2.20. Eaton Bookstore, Box 1242-Z, Santa Rosa, California.

HOMEBREW GUIDE, complete illustrated instructions. $2.00. Hydrometers available. CalBrew Supplies, 1225-B Luzern, Seaside, California.

MAKE BEERS, Wines, Brandies.....$1.00. Gloeckner, Box 2431, University Station, Gainsville, Florida.

BEAUTIFUL CRESTED Malkin Ducks. Pair $25.00. Meadowbrook, Richfield 35, Pa.

• • • OLD GOLD WANTED

WANTED, GOLD, silver, platinum, jewelry, watches, diamonds, gold teeth, gold and rare coins, spectacles. Highest prices paid immediately. Information free. Wilmot's, 1067-MI Bridge St. W., Grand Rapids 4, Michigan.

HIGHEST CASH Paid for Old Gold, Jewelry, Gold Teeth, Rings, Diamonds, Watches, Silver, Platinum. Mail Articles Today. Information Free. Chicago Gold Co., 6 E. Monroe, Dept. 2556, Chicago 3.

HIGHEST CASH For Old Gold, Jewelry. Gold Teeth, Watches, Diamonds, Silverware, Spectacles, Platinum, Mercury. Free information. Rose Refiners, Heyworth Bldg., Chicago 2.

• • • WATCHES, WATCHMAKING, CLOCKS

WATCHMAKERS', JEWELERS', Lapidaries' Catalog 25¢. Bengal, 8914 Venice, Culver City, California.

WATCH AND clock repairing books. Free catalog. North American, 2320-CB Milwaukee, Chicago 47, Ill.

USED AND new watches $2 up. Free List. Southern Watches, 5-M South Wabash, Chicago 3, Ill.

More happy ideas from the new

This Corvair 700 4-Door Sedan has provisions for heating ducts built right into its Body by Fisher.

more spunk, savings and travel space!

'61 CHEVY CORVAIR!

Wasn't easy, but we managed to make Corvair even more desirable in '61: we boosted the displacement of that air-cooled rear engine to 145 cubic inches. Made Corvair even thriftier to run: Coupes and Sedans carry lower prices, and quicker cold-start warmup gets you saving fast. (There's a new heater* that distributes heat more evenly, and a longer range fuel tank.) Added space inside for you, up front for your luggage. (Sedans and Coupes give you nearly 12% more space under the hood.) You'll like Corvair's smarter styling, too, the minute you see it. But that's not the half of Corvair's good news for '61. Now Corvair has family-lovin' wagons for you! Interested? Read on!

Chevrolet Division of General Motors, Detroit 2, Michigan/ *optional at extra cost.

The Lakewood 700 Station Wagon—4 doors and up to 68 cubic feet of cargo area.

Coming your way—the nimble Greenbrier Sports Wagon.

The Lakewood Station Wagon does a man-sized job with cargo, yet handles like a charm. Our Greenbrier Sports Wagon—unlike anything ever built in America before—has space for up to 175.5 cubic feet of people and things on a maneuverable 95" wheelbase. Check that against the wagons you're used to. Same rear-engine traction, same parkability that have become a Corvair trademark. See the whole sensible lineup soon—at your Chevrolet dealer's.

MAIL FOR McCAHILL

UNCLE TOM ANSWERS HIS MOST INTERESTING LETTERS IN THIS COLUMN. WRITE TO HIM AT *MECHANIX ILLUSTRATED*, 67 WEST 44TH ST., NEW YORK 36, N. Y.

● *The other night I got a flat tire with my $4,800 car. The road was deserted and I soon found myself in plenty of trouble. After I got the wheel off the ground with the sleazy stringbean bumper jack (which is a pretty dangerous contrivance at best) I found the dimestore lug wrench that came with the car to be oversize, and the best I could do on one lug was to round off the corners. Due to the bad fit, I couldn't budge it. I finally had to ride the shoe into the next town, six miles away, which completely ruined the tire. My complaint is: With a $4,800 car shouldn't you expect a workable lug wrench, plus a jack that won't scare you to death?*

Howard T. Barton
Baltimore, Md.

I once had a flat with a brand-new "luxury" car on a deserted country road late at night. When I looked for the jack—it just didn't have one, so I had a long hike. To answer your question, the jacking equipment with almost all today's cars would insult the intelligence of a baboon. After spending many years with Detroit auto men, let me assure you lots of them feel their customers *are* baboons. The "sell it to them and then the hell with them" attitude still reigns supreme.

● *I live in Pennsylvania and would like to have a customized auto. How can I do this and be able to get it inspected when the inspection stations in my area refuse to safety-check an auto if it is custom?*

Robert Canffield
Johnstown, Pa.

Your best bet is to move to a more enlightened state or vote twice for the right man at the next election.

● *Do you own the controlling stock in MI? If not, then your wife must—or else some of your stuff wouldn't be printed.*

Don Menefee
Mayfield, Ky.

You're wrong on both counts. It just so happens that I know where our dear Editor, Bill Parker, buried the body.

● *I'm a small-town car dealer. This morning I had a family fight and got away from it by reading Mail For McCahill when I reached the office. I've been reading you for more than a dozen years, Uncle Tom, and here's the bit. A few years ago when things were really tough I had a kid in the hospital and very little dough. There were no car buyers, so on the side I did a little running for a bookmaker and was caught. I was fined $100 and given a 90-day sentence, which was suspended. Ever since then my brother-in-law (who never knew a poor day in his life and inherited his father's business) has been encouraging my wife to leave me because I'm a no-good with a criminal record. She's stuck by me but this has caused a number of family squabbles. All my in-laws (there are many of them) treat me like dirt in spite of the fact that this was the only time I ever got into trouble and today I'm making good money. Just blowing off steam, Uncle Tom. I had to tell someone and feel you're an old friend.*

Name withheld
Wisc.

Old friend, remember this—it's very easy for anyone to act noble if he's never known anything but a full belly. To hell with your in-laws!

● *I have a question about the Olds and Reo cars. Were there two Olds brothers, and if so, which represented which car? I feel the Olds name is in there somewhere.*

John Cestone
New Rochelle, N. Y.

Ransom E. Olds, former Daytona Beach hot-rodder, founded the Olds Company, and later Reo. You will note that R. E. Olds' initials spell REO. Incidentally, Olds' Daytona

[*Continued on page* 56]

Big Ones won't get away

WITH FISH-SAVING LEVEL-WIND AND MICRO-DRAG

"This one didn't", says Marinus DeJong. "My push-button outfit stopped him cold on Campbell lake in Michigan."

HEAVY DUTY

Shakespeare

PUSH-BUTTON WONDERCAST®

EASY CASTS—QUICK AS A FLASH WITH PUSH-BUTTON MAGIC!

Just a push of the button, s-w-i-s-h of the rod—PRESTO—PUSH-BUTTON FISHING! Long, easy casts every time. Backlash impossible! Smooth, powerful level-wind retrieve—plus fish saver MICRO DRAG—brings the big ones under control—*quickly*. **No. 1797** Beautiful bronze finish heavy-duty push-button WonderCast filled with approx. 100 yds. 12-lb. line **$24.95**

(*Other push-button reels from $14.95*)

DOUBLE-BILT© WONDEROD®

(1) A reinforcing glass fiber cylindrical wall inside (2) thousands of parallel glass fibers outside—it's this patented process that leaves the famous spiral markings—visible trademark of genuine Wonderod quality. **No. 1579** *Bronze and white push-button Wonderod 6' & 6' 6" L, XL or M action or 7' model.....* **$18.95**

FREE FISHING CATALOG—SEND TODAY!

You will enjoy this new big catalog "Successful Fishing with Shakespeare Tackle," showing the newest in reels, rods, and lines. Plus pocket fishing calendar showing best days to fish. ©*By Shakespeare Co.*

SHAKESPEARE COMPANY, Dept. MI-2, KALAMAZOO, MICH.

Please send me absolutely FREE your big new tackle catalog and 1961 fishing calendar.

Name_____

Address_____

City_____ Zone____ State_____

Beach home is now owned by the ex-head of Cuba, Batista.

● *About 500 miles ago I took delivery on a new Thunderbird. The dealer told me not to try to break it in. In fact, one of the mechanics said that I would do well to open it wide from the start. Seemed to imply that I'd ruin it if I didn't hit 100 mph right off the reel. Well, I didn't do it since I remembered your admonitions of several years ago. Have cars changed so that they do not need a little breaking-in even now?*

Albert T. Hume, M.D.
Outwood, Ky.

Your mechanic sounds like an idiot. Even tires need careful breaking-in. Any well-built car needs as much breaking-in as ever; only the poorly-fitted, wide-open-tolerance pots can be abused from the day of birth.

● *What is the proper way to start an automobile motor in winter and also in summer?*

Lorenzo W. Graehl
Salt Lake City, Utah

On most modern cars we turn the ignition key. On older ones, after turning on the ignition we press the starter button.

● *Try and top this, McCahill. A friend of mine who lives in Phoenix drove to Los Angeles for a sales meeting. Late in the afternoon in a diner a waitress spilled some coffee over his light gabardine trousers, which made a bad stain. Not having any other pants with him, he pulled what was almost a clever stunt. He got in his car, took off his pants, put his coat over his knees and drove to a nearby drive-in quick dry cleaning service where a girl at the drive-in window took his pants without his having to leave the car. As it was double-rush service, she said she'd have them ready in about an hour and a half. Not wishing to spend that time in a parking lot, he decided to take a little drive to see the sights.*

About three miles from the cleaner's, his left front tire blew and there was my pal, without any pants, on a busy thoroughfare and unable to leave his car to make the tire change! He pulled to the side of the road and finally a police car came along. The officer was more than a little skeptical and decided a trip to the police station might be in order. There they could also call a garage to have the tire changed. Tying his coat around his waist by the sleeves, he left his car in kilt fashion and went with the police. It was some

[*Continued on page 60*]

When answering advertisements please mention MECHANIX ILLUSTRATED

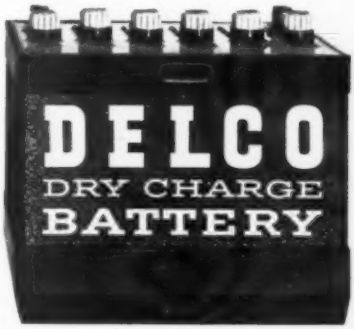
Why try to get by with a "bargain" battery. Save time, money and trouble with a dependable Delco DC-12 Dry Charge! You can figure this one out fast. What does it cost you to be late for work? A couple of hours missed because of a bad battery adds up to inconvenience . . . and money. You'll avoid such trouble with a sure-starting Delco Dry Charge Battery.

ALL THE POWER YOU PAY FOR . . . DELCO! A Delco DC-12 stays bone dry . . . can't lose any "zing" on the shelf! When you buy it, the dealer adds the fluid that activates it with 100% fresh starting power . . . plus the reserve power required for modern automotive electrical equipment.

YOUR BEST QUALITY BUY . . . DELCO DC-12! *Extra fluid capacity*—Less refilling, less danger of damage from low fluid level. *Hard rubber case*—Stronger, also resists heat distortion. *Microporous rubber separators*—More current flows between plates, means peak power at all temperatures. Ask your dealer about these and many other Delco quality features.

A DEALER NEAR YOU . . . DELCO! He's a *local* businessman who appreciates your service business, wants to keep it. Automotive service is not just a sideline with him . . . it's his *specially!* He knows your driving needs, can recommend the right Delco Battery for your car.

BE SURE . . . REPLACE WITH DELCO! For dependable starting in any weather, replace with 100% fresh Delco. It's "Designers' Choice" for most new cars, survey-proved as "Drivers' Choice" for replacement, too. When it's time to replace your old battery, make sure you get a Delco DC-12! *DELCO ENTERTAINS YOU—"Stagecoach West" and "The Islanders"—ABC-TV.*



DELCO . . . "A GOOD NAME FOR GOOD SERVICE!"

Another reliable General Motors product, distributed nationally through UMS

RUGGED RELIABILITY TEST: NEW TEMPEST DRIVEN ROUGH AND HARD BY TEAM OF TEENAGERS!

Six of the teenagers photographed at a rest stop in Denver, Colorado. Left to right: Roger Anthony, John Sheffler, Jay Hall, Larry Weber, Jim Bader and Bob Quaid.

THE HOT TOPIC IS THE NEW TEMPEST BY PONTIAC!

ENGINE ⟷ TRANSMISSION
PERFECT BALANCE

When you turn a couple of new cars over to a team of teenagers, you know the cars will get a real test of performance and durability. That's exactly what Pontiac did last July 1 with a Tempest Sedan and a Tempest Safari! The only instructions: "Keep them moving 24 hours a day. Treat them roughly. Pile on the miles! Drive safely. Stick to the traffic laws."

The Tempest had already passed all the usual car tests (2,600,000 miles of testing by pro drivers and engineers). But this was the big one. A new and different kind of test. Pass this and the Tempest had it made.

It was a responsible assignment. The kids knew it and they bought it—100%! Sure they got tough with the cars. But that's what Pontiac expected—and wanted! That's the way you find out how much a car can take . . . how much it can deliver.

PONTIAC RELIABILITY PROGRAM PAYS OFF!

The test ended on October 15, 1960. The durability run proved conclusively that the new Tempest (with the 4-cylinder engine up front . . . transmission in the rear . . . flexible triple-alloy steel drive shaft . . . 4-wheel independent suspension . . . integral body and frame) gives the others something to shoot for on performance, economy and reliability.

THROUGH 48 STATES, CANADA, TOO!

Supervised by three Pontiac engineers, these teenagers really man-handled the Tempest through 48 states and 7 Canadian provinces. They rammed the cars over back roads! Held it at the legal limit on expressways! Breezed it up and down Pikes Peak with no sweat! Scooted across scorching deserts.

EQUAL TO SEVEN YEARS OF DRIVING

Day and night the miles piled up. 100,9[illegible] on the Sedan; 101,002 on the Wagon. Roughly the same as 7 or 8 years' driving. The cars got no special care. The protective maintenance procedures recommended in the Owner's Manual were followed—and it paid off! Plugs, points and fuel filters were changed every 12 to 15 thousand miles. Brakes were adjusted a couple of times but *never needed relining!* Tires were changed twice.

(*Here are the other repairs. Sedan: 19,1[illegible] miles—starter solenoid changed. 20,701 miles—windshield cracked by stone. 40,094—left rear back-up light replaced. 62,765 miles—fuel pump replaced. 96,492—generator brushes replaced. 98,549—radiator leak repaired. Wagon: 4,576—light switch replaced. 16,192—stone chip in windshield. 40,591—heater switch connector loose. 51,368 miles—flying rock pierced gas tank. 96,527—generator brushes replaced. 97,210—rear wheel bearing replaced.*)

That's it! And that's low-cost, trouble-free driving. Check the Tempest out yourself! See your Pontiac dealer. Get the keys. Drive it.

PONTIAC MOTOR DIVISION • GENERAL MOTORS CORPORATION

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TEMPEST SAFARI RACKED UP

101,002 TOUGH MILES!

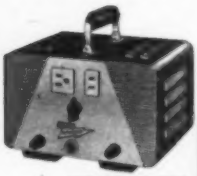
IN 107 DAY ROUND-THE-CLOCK MARATHON

TEMPEST SEDAN POUNDED

100,947 RUGGED MILES!

FROM COAST TO COAST, BORDER TO BORDER

The Miracle of Transistors Brings You



110 AC FROM BATTERIES

ESB PACKAGED POWER

ACTIVERTER

©1960

Dependable Power for Hundreds of Uses

Now — using a totally new concept in electronic design — the ESB engineers have developed a revolutionary, fully transistorized inverter-charger, the ESB ACTIVERTER. This major breakthrough in "packaged power" means that you can now have the convenience and the utility that 110 Volt AC current can bring, and you can have it wherever you can take a 12 Volt storage battery!

Just connect the ESB ACTIVERTER to a battery and you can have 110 AC instantly, anywhere, for many hours. You can plug in portable electric power tools, an electric blanket, electric lights, even a television set! A flick of a switch and the ESB ACTIVERTER fast or slow charges 6 or 12 Volt batteries.

Compact, Rugged, Truly Portable

The compactness of the ESB ACTIVERTER design makes it possible to have a 12 Volt storage battery, an inverter, and a battery charger all in one self-contained and portable package. One PAK-O-POWER ACTIVERTER model provides a source of 110 Volt AC, with an output rating of 500 Watts, in a package the size of a portable picnic cooler! Because solid-state electronic components are used throughout, ACTIVERTERS are both rugged and lightweight. There are no moving parts, no vibrators.

4 Sizes — from 150 to 500 Watts

MODEL I-152 INVERTER — Inverter only, operates from direct connection to 12 Volt battery or through cigarette lighter socket of cars with 12 Volt systems. Output ratings: Intermittent Use — 150 Watts, 1.5 Amps. AC . . . Continuous Use — 125 Watts, 1.2 Amps. AC. Shipping Weight: 8 lbs.

MODEL IC-252 ACTIVERTER — Inverter-Charger operates from direct connection to 12 Volt battery. Output ratings: Intermittent Use — 250 Watts, 2.3 Amps. AC . . . Continuous Use — 200 Watts, 1.8 Amps. AC. Shipping Weight: 15 lbs.

MODEL IC-202P PAK-O-POWER — Inverter-Charger with compartment for 12 Volt battery. Completely self-contained unit. Output ratings: Intermittent Use — 250 Watts, 2.3 Amps. AC . . . Continuous Use — 200 Watts, 1.8 Amps. AC. Shipping Weight less battery: 22 lbs.

MODEL IC-506S PAK-O-POWER — The Multi-Service Inverter-Charger-Car Start unit, with large 12 Volt battery compartment and Car Start leads. Completely self-contained with built-in fast and slow charger — Charging rate: 60 Amps. for 6 Volt, and 40 Amps. for 12 Volt batteries. Output ratings: Intermittent Use — 500 Watts, 4.0 Amps. AC . . . Continuous Use — 300 Watts, 2.5 Amps. AC. Shipping Weight less battery: 55 lbs.

ESB PACKAGED POWER — THE ELECTRIC STORAGE BATTERY CO. Makers of Willard - Exide - GRANT - UNICO - Jordan

The Electric Storage Battery Co.
Automotive Division — Dept. MI-2
P.O. Box 6200 - Cleveland 1, Ohio
I want to use 110 Volt 60 Cycle AC for _____

Please send me ESB ACTIVERTER information without obligation.
Name _____
Street _____
City _____ Zone _____
State _____

Mail For McCahill

[Continued from page 56]

time before the Desk Sergeant got around to hear his story. The Sergeant told him there was an ordinance against driving on public highways improperly clad but that he'd overlook it this time.

After the police had driven him back and the garage men had changed the tire, more time had elapsed. When he finally got going and returned to the cleaner's he found that they were closed for the night! Undoubtedly (I think), he could have gone to some men's shop that was still open and bought another pair of pants but he says he was so disgusted he drove the 400-plus miles back to Phoenix. When he arrived home well after midnight, his wife was as slow to buy his story as the Sergeant had been. I know—I'm the wife. What do you think?

Mrs. J. L.
Phoenix, Ariz.

Sounds to me as if he was forced to leave *some* place in an awful hurry. What do *you* think?

● *I am interested in getting a Mercedes-Benz 190D. Expect that I will be reassigned west of the Mississippi but have heard there are some states which do not allow diesel vehicles of this kind within their borders. Is this true?*

A1/c C. E. Duggan
APO 63, San Francisco, Calif.

The Mercedes 190D is an excellent machine, though a bit noisy at idle speeds. If there are any state restrictions against diesel cars I am unaware of them, so maybe some of our readers will pipe up and let us know.

● *I do a lot of turnpike traveling and find one of the greatest menaces is the driver who gets in the high-speed lane doing five to ten mph below the limit and refuses to move over to the slower lane. This type of menace ignores all horn blowing and belligerently stays in the high-speed lane even though car after car is forced to pass him on the inside, which makes them illegal and subject to arrest. All the turnpikes I travel on (which includes most of them in the east) have signs telling you to keep to the right except when passing. What's the solution?*

George F. Kiker
Trenton, N. J.

I've run into dozens of these hammerheads myself. If the State Cops who patrol most turnpikes would start knocking off a few of these roadhogs for careless driving and obstructing traffic it would be a real service.

[Continued on page 62]

Earn BIG MONEY

Start YOUR OWN BUSINESS!

CHRISTY TRAINING IS COMPLETE TRAINING

CHRISTY teaches you the easy-to-remember way. You work with your hands using the professional tools we send you doing motor tune-ups, overhaul, etc. You learn about Automatic Transmissions, 4 Speed Gear Shifts, Electric Cooling and Lubricating Systems, Power Steering, Brakes, Air-Conditioning, Wheel Alignment, Body Repair, Refinishing, Shop Layout, etc. You get motor tune-up specifications for every car for the past 25 years, for foreign cars, too!

YOU EARN AS YOU LEARN

CHRISTY's Home Shop Training Program is designed so you begin earning almost from the very first day. You can work on your own car, increasing its efficiency, gas mileage, etc. You start working in your spare time fixing cars for neighbors, etc. Before you know it, you will be in your own business.

OVER 100,000 AUTO MECHANICS NEEDED *NOW*

The need for auto mechanics is tremendous because of the many new size automobiles, designs, styles, types of engines, etc. The industry is not keeping pace supplying enough Auto Mechanics for the increasing volume of automobiles on the streets today. This is your opportunity to become independent and earn BIG MONEY.

14 SETS OF PROFESSIONAL TOOLS

including Engine Tune-Up Equipment with highest quality Compression Tester, Vacuum Gauge, Fuel Pump Tester, Ignition Timing Light in a sturdy portable steel case PLUS finest Chrome Alloy tool sets of wrenches, socket wrenches, automatic drills, magnetized screw drivers, Ignition Sets, Allen Wrenches, Files, Extensions as well as needed specialized tools, are sent to you! A heavy gauge steel tool box with removable tote tray is also furnished.

DIESEL TRAINING INCLUDED

Everything is included in CHRISTY's COMPLETE MASTER Home Shop course. You learn all about automotive parts and equipment . . . how and why they work, what has to be done to keep cars running and looking like new. You learn short cuts, kinks, time and money saving methods. You will *know* the BASIC *MECHANICAL PRINCIPLES* and be able to fix *all* parts of *all* cars built during the past 25 years.

CHRISTY STUDENTS WRITE

"I've learned more from CHRISTY in this short time than I did in a year and half in a trade school." E.J.C., CONN.

"Have already cleared $468.21 and have $200.00 in parts." G.S., NORTH CAROLINA

"I'll have to give up my job and use all of my time for repair work." B.J., NEW YORK.

"Made $102.00 for a week end. Not bad and a very satisfied customer." W.H., MICHIGAN.

"Making $15.00 and more on Saturdays. Just what a mechanical-minded man needs." G.F., GEORGIA.

FREE!

FREE BOOK—FACTS SENT

Sign and mail coupon today. No obligation.

CHRISTY TRADES SCHOOL, Dept. B-106
3214 W. Lawrence Ave., Chicago 25.

Rush me FREE book and special form for getting CHRISTY's COMPLETE AUTO TRAINING and OVER 100 PROFESSIONAL TOOLS on pay later program.

Name .....Age.....

Address .....

City .....Zone.....State.....

BUILD THIS SUPERB *Schober* ORGAN FROM SIMPLE KITS *and save over* 50%!

Give Your Family A Lifetime of Musical Joy With A Magnificent Schober *Electronic* Organ!

Now you can build the brilliant, full-range Schober CONSOLETTE or the larger CONCERT MODEL with simple hand tools! No skills are needed; no woodworking necessary. Just assemble clearly marked electronic parts guided by step-by-step instructions. You build from kits, as fast or as slowly as you please . . . at home, in your spare time – with a small table serving as your entire work shop.

THE GREAT **CONCERT MODEL** meets specifications of American Guild of Organists

Pay As You Build!

Start building your organ at once, investing just $18.94! The superb instrument you assemble is as fine, and technically perfect, as a commercial organ . . . yet you save over 50% on quality electronic parts, high-priced labor, usual store mark-up!

Free Booklet

Send for 16-page booklet in full color describing Schober organs you may build for home, church or school, plus articles on how easy it is to build your own organ and how pleasant it is to learn to play. Also available is 10" LP demonstration record (price $2.00 – refundable on first order). Send for literature. No obligation and no salesman will call.

Mail This Coupon For FREE Schober Literature And Hi-Fi Demonstration Record TODAY!

The Schober Organ Corp., Dept. MI-2
43 West 61st St., New York 24, N. Y.

☐ Please send me FREE full-color booklet and other literature on the Schober organs.

☐ Please send me the 10" hi-fi Schober demonstration record. I enclose $2.00 (refundable on receipt of my first kit order).

Name.....

Address.....

City..... Zone... State.....

Mail For McCahill

[*Continued from page* 60]

These guys are true menaces and have caused accidents. I've yet to hear of anyone being arrested for hogging the high-speed lane. How about it, State Cops?

● *I was about to buy a Jeep recently but when my wife (who was going to accompany me on a few fishing trips) tried the seats, she said, "Nothing doing." Willys lost a sale. What's with those seats, anyhow? I remember your writing about how lousy they were years ago. Is there any real reason for their being so uncomfortable?*

B. J.
New Haven, Conn.

When I first bought my Jeep some years ago I made up my mind in the first 100 miles that I'd either sell it or solve the seat problem. I bought and installed two bucket seats from a wrecked sports car and they are still in there. This has made the difference between getting old before my time and some comfort. I've written about this a number of times. The Jeep is a truly great American vehicle, worth every dollar it costs, but it has three major faults: the ridiculous seats; the almost-impossible-to-operate removable top (I paid $165 for an easy-to-operate nylon top for mine), and the fact that most Jeep bodies I've seen have been very poorly rustproofed. These three faults could be corrected for very little money if, on any hot Saturday afternoon, some Willys official decided it was worthwhile thinking about them.

● *What is your opinion of unleaded gas? Is it better than leaded gas or not?*

James P. Jarrell
Montgomery, Ala.

An unleaded gas of the same octane as a leaded gas is a cleaner choice.

● *Could you please tell me why the President of the U.S.A. doesn't ride in a 1961 car? Whenever he is on tour or has an important visitor to the White House, he is always shown in an older car, usually a 1951. I've read your column for many, many months and I thoroughly enjoy it. My husband and I have had a standing argument for some time I say in the year 1947 or 1948 Lincoln had a model they called the Continental. My husband says the name Continental is for the wheel that goes on the back of any make car. Which is it?*

Margaret Hunter
Tansboro, N. J.

Those cars our Prexy rides in are heavily

[*Continued on page* 173]

A number of one-man mail order enterprises are paying their owners an income of $40,000 to $50,000.

SPECIAL OPPORTUNITIES

Mail order is big business. Annual catalog sales volume of Sears, Roebuck and Co. is over 700 million dollars!

HOW TO START

Your Own Mail Order Business

You can make a fortune by mail. New firms will set you up in a fabulous mail order business of your own! They'll make up your catalogs, prepare your advertising, supply mailing lists and even ship your products for you!

By Robert Stevenson

When Anthony Sambati injured his back and was laid off from work he never dreamed it would be a blessing in disguise. Bedridden for weeks, he decided to start a small mail order business. This was something he could run right from his own home and required very little capital to begin. In fact, Sambati started with less than $85.00.

(Advertisement)

After a short time in mail order, Sambati soon had a beautiful home with all the luxuries of a successful businessman.

He figured that a small mail order business might provide a temporary income to support his family until he got back on his feet. His first step was to obtain a franchise from a large wholesale mail order firm which supplied him with all the necessary catalogs and mailing literature. It wasn't long until his spare-time venture blossomed into a booming enterprise. Drawing a small salary and pouring the rest of the profits back into the business, he soon had others working for him! Today he owns a large retail store, his own warehouse and a beautiful home with all the luxuries of a successful businessman.

Sambati's story is typical of a number of men and women who began a small mail order business with absolutely no previous experience, and made a huge success of it. These 'little' people are quietly pocketing big profits every day—many content to keep the business small . . . spending an hour or two each day in the privacy of their own home. No bosses, time clocks or small pay envelopes. No door to door selling, in fact, you never even meet your customers face to face.

Yes, a small one-man mail order business is ideal for anyone wanting a chance to gain financial security and independence. Yet thousands try mail order each year and fail, simply because they don't learn the few simple secrets of success early in the game.

Take the case of Bud Sheer who had been working for a theatre in a small New Jersey town. With only a few hours spare-time to spend each morning, he tried mail order to supplement his regular income. Like many beginners in this field, Sheer was faced with the problem of finding good mail order items which would have a high mark-up and repeat sales potential. But the biggest obstacle was the expense of printing a catalog.

Then he heard about the A. J. Statile Co. of Ridgefield Park, New Jersey—an organization set up to aid the small mail order beginner.

He wrote to A. J. Statile Co. for full information, sent in his application for a franchise and within a short time the cash began rolling in. Today Bud Sheer *owns* the theatre he once worked for. Sheer attributes his success in mail order to the A. J. Statile Co. Actually, the theatre he owns has become a side investment. He still uses the beautiful 300 page mail order catalogs supplied by A. J. Statile Co.

How does the Statile Co. help the beginner get a sound start in mail order? Very simply. Just as Henry Ford made automobiles within the reach of the general public—by mass production and large volume.

Let's take a few specific examples:

(1) All franchised dealers of A. J. Statile are offered ready to mail catalogs and sales literature. Each mailing pieces has the dealer's name and address printed right on it. By printing millions of catalogs, Statile is able to offer these at a fraction of their regular cost. The artwork and layout costs for these catalogs would run into thousands of dollars for the beginner if he were starting from 'scratch'.

(2) Since all mailing material and catalogs contain your name and address, all orders come directly to you. Yet you don't have to invest one penny in inventory. All merchandise is stocked for you. In fact Statile has over $3 million dollars worth of mail order merchandise at your disposal.

(3) All packaging and shipping is done for you. You simply send a shipping label to Statile together with the wholesale cost of the items, and the merchandise is shipped directly to your customers under your own shipping label.

(4) A consultation service is provided to answer any questions you may have. You receive a secret list of over 100 national magazines which run free ads. You'll be shown how to obtain free publicity on your own mail order items. In addition, you obtain trade names and addresses of over 150 other mail order wholesalers who drop-ship top mail order items for you. You'll also be given all the government laws and regulations pertaining to a home operated mail order business. These laws are a 'must' for all beginners.

All this valuable information is covered in the Statile Mail Order Survey which every new franchised dealer receives from Statile before they begin. Formerly sold for $25.00, this survey has become the 'bible' of the trade. Mr. J. M. of Baltimore, Md., writes, "To tell the truth, all the information in regard to obtaining free ads is alone worth the $25.00 I paid you . . ." J. D. of Kalamazoo, Mich.,

states, "Just a personal note to say I am most satisfied with my $25.00 investment. Your sales plan is simple and well organized . . ." These are only a few of the many testimonials received praising the Statile Mail Order Survey.

(5) The catalogs and mailing literature offered by Statile Co. cover every conceivable mail order item. You select the field you are interested in . . . BABY ITEMS, TOYS, APPLIANCES, VITAMINS, BOOKLETS AND MAIL

The thrill of receiving money in your morning mail is one you'll never tire of.

ORDER COURSES, you name it, Statile has the catalog or mailing piece. Select your market, order your mailing literature and you're in business.

(6) You'll be told how to compile your own mailing lists—and this is the most important part of your business. Many a beginner has fallen by the wayside simply because he mails his catalogs to a poor list of names. Suppose, for example, you offered a beautiful scale model of a 40′ Chris-Craft cabin cruiser by mail. You would probably make your mailings to boating enthusiasts and the chances are that nine times out of ten your mailings would show a loss instead of a profit. How would Statile help you solve this particular mailing list problem? He would show you where to get the names and addresses of *actual owners* of 40 foot Chris-Craft cabin cruisers! Surely every owner would like to have a scale model of his own boat. Strange as it may seem, such a mailing list is available to anyone. The secret is where to find it. This is just one example of how an experienced mail order expert giving you personal advice, may mean the difference between success and failure!

This same method of obtaining selective specialized mailing lists may be applied to practically any market . . . selling baby items to new mothers, selling toys to young children, etc., etc.

So much for starting your own mail order business. Now, a word of caution. OBTAIN YOUR MAIL ORDER FRANCHISE FROM A REPUTABLE MAIL ORDER FIRM. Unfortunately, during the past few years a number of ads have appeared in newspapers and magazines offering to start people in mail order. The ads are grossly misleading. Many imply that you can become a millionaire over night if you use their catalogs. Beware! Particularly if they operate their own mail order business direct to the consumer. These firms compete with their own franchised dealers! They could just as well mail all the catalogs themselves. They don't need you.

Other shady firms fail to drop-ship your orders promptly, thereby losing customers for you. In mail order, prompt shipment is an absolute requirement for a successful operation.

Deal only with firms whose business is preparing catalogs and shipping merchandise. They operate on a strict wholesale basis for franchised dealers exclusively. Such a firm is the A. J. Statile Co. Letters from successful franchised mail order dealers speak for themselves. A woman from Milwaukee writes, "It has been better than my expectations." A gentleman from California states "we are quite pleased with the response we are receiving". Another man from Wisconsin writes, "To say the least, I am more than satisfied."

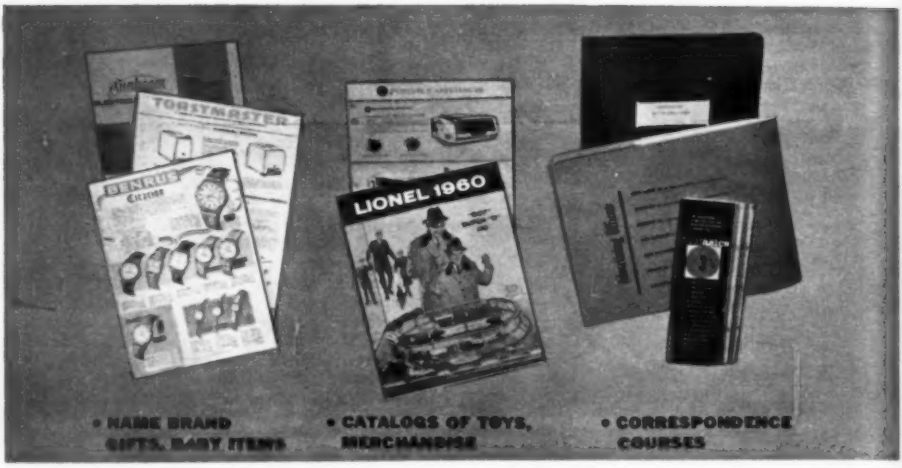
Yes, a small mail order business offers you an opportunity to earn a second income, or—if you work at it in earnest, a chance to strike it rich. The young housewife in St. Louis may be content to make an extra $20.00 a week . . . the office worker in Los Angeles may be aiming for $150.00 weekly full time business . . . and the ambitious schoolteacher in Newark may reach $20,000.00 a year. What is your objective? Set your own goal, pick your own hours, and the sky is the limit.

Even a government report stated that a number of the most successful one-man mail order enterprises make as high as $40,000 to

Big firms will carry all stock for you. They ship orders direct to your customers using your own shipping labels.

(Advertisement)

Your Own Catalogs of Top Mail Order Items!



A. J. Statile Co. will prepare your catalogs, write your sales letters, supply mailing lists and even ship merchandise for you, using your own shipping labels!

$50,000 a year! But frankly, this is the exception rather, than the rule. Most mail order operators are content to earn a comfortable living doing little physical work, but enjoying their work thoroughly! We don't say you'll be a mail order millionaire or another Sears & Roebuck, but if you're looking for a business of your own with financial security, the answer is mail order. If you've already tried mail order with little or no success, don't give up! Try to analyze what went wrong. Success comes only to those who keep trying and learn from their own mistakes. Again we emphasize, deal only with a reputable firm.

The A. J. Statile Co. has been in business for over twelve years. They are members of the United States Chamber of Commerce and the Ridgefield Park Chamber of Commerce. They gladly furnish bank or trade references upon request. They are probably one of the largest mail order wholesalers in the country. Whether it be toys, gifts, vitamins or appliances—they've got it ready to ship under your label WITHIN 24 HOURS!

Firmly convinced that no other business offers the tremendous opportunities of mail order, A. J. Statile, president of the firm, is an outspoken advocate of the man or woman who wants to start in business for himself. As Statile puts it, "by all means, start your own business and start NOW! If you want a chance at security and financial independence make your choice mail order. There's nothing like it. Absolutely nothing!"

FOR FREE DETAILS

Mail coupon below—no obligation

A. J. Statile Co. • Statile Building • Ridgefield Park, N. J.

Dear Mr. Statile:
Please send me complete FREE details telling me how I may obtain a franchised mail order dealership with your firm. I understand I am under no obligation and no salesman will call on me.

NAME..... AGE..... SEX.....

ADDRESS.....

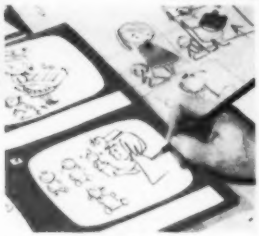
CITY..... ZONE..... STATE.....

PREVIOUS EXPERIENCE, IF ANY.....

New talent needed for commercial art

Magazine illustrating

Advertising layout art



Television art

Lettering

Art Talent Hunt announced by nationally known illustrator

Walter J. Wilwerding

To help fill the nationwide need for new artists today, an Art Talent Hunt is being conducted right now. Artists are needed for advertising, magazine illustrating, television, cartooning, and other fields. Openings have increased around 50% in the last five years, according to a large employment agency. Earnings are up, even for beginners.

If you'd like to get into commercial art, here is the first thing to do. Find out if you have the necessary talent. You can, now, without cost or obligation. Just take an *Art Talent Test* at home. This test is being contributed, free, by a well-known art school. It's a simple test, yet it will tell whether you were born with a natural talent for drawing. You take this test by yourself, then mail it back. Professional artists examine and grade it—and if your test shows talent, you get expert counsel as to an art career.

Send today for this free Art Talent Test that has started so many towards profitable careers in some branch of the art field.

Clip and mail postage-free card today!

FROM

Name_____ AGE_____

Address_____ Apt._____

City_____ Zone_____

County_____ State_____

FIRST CLASS
PERMIT
No. 31
Minneapolis
Minn.

BUSINESS REPLY MAIL
No Postage Stamp Necessary if Mailed in the United States

POSTAGE WILL BE PAID BY

ART INSTRUCTION, INC.
500 South 4th Street
Minneapolis 15, Minnesota

Studio 2065

You can light either end!

Taste PALL MALL...so

GOOD! GOOD! GOOD!

Good-looking, Good-tasting, Good-smoking Pall Mall!

Why does Pall Mall taste so good, good, good? Because Pall Mall's famous length of fine, good-tasting tobacco travels and gentles the smoke naturally—makes it mild—but does not filter out that satisfying flavor. That's why Pall Mall tastes so good! good! good! Never too strong. Never too weak. Always just right!

HERE'S WHY SMOKE "TRAVELED" THROUGH FINE TOBACCO TASTES BEST

1 You get Pall Mall's famous length of the finest tobaccos money can buy.

2 Pall Mall's famous length travels and gentles the smoke naturally. Travels it . . .

3 Over, under, around and through Pall Mall's fine, good-tasting tobaccos—and makes it mild!

Outstanding...and they are Mild!

Enjoy satisfying flavor...so friendly to your taste!

© A. T. Co. *Product of The American Tobacco Company — "Tobacco" is our middle name*

MECHANIX
ILLUSTRATED
February 1961

CAPE CANAVERAL'S CLOSE CALLS

By L. B. Taylor, Jr.

ON September 24, 1958, during a routine Polaris countdown at Cape Canaveral, a spout of flame kicked the Navy's 25-foot white-and-black striped missile skyward from its launching pad. An ear-splitting roar turned heads all over the area to watch its graceful climb. A few observers saw the missile twitch a little as it disappeared behind a low cloud. Then, as it shot back into view, it went into a crazy somersault. A loudspeaker boomed: "Atten-

JUNO II MOON ROCKET veers off course (top) and is exploded. Photo on preceding page is of a multi-million-dollar Titan ICBM exploding on its launching stand in December 1959.

tion in the Cape area. All personnel take cover immediately."

The careening, fast-climbing Polaris was now at 50,000 feet. An Air Force Range Safety Officer pushed a red button to trigger the bird's destruct package—just 43 seconds after takeoff.

The explosion ripped the Polaris into two fiery halves. The first stage crashed near the launching area and set off a small brush fire. The second stage sailed southwest in a sickening spiral that terrified three fishermen on a pier in Canaveral Harbor and plummeted seconds later into the Banana River, two miles south. A few people were understandably shaken up but there were no injuries.

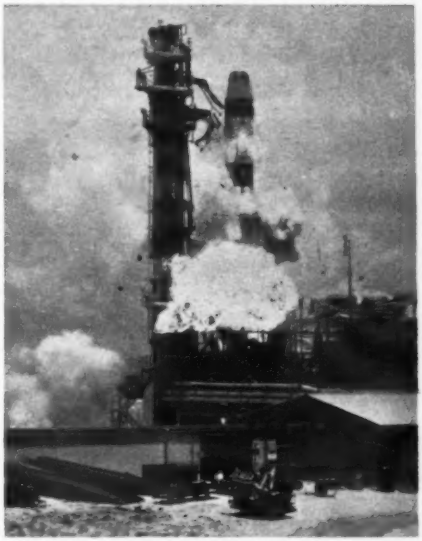
In over ten years of testing at the Cape—covering more than 800 launchings—a small percentage of erratic birds have strayed, flipped, looped, somersaulted, dived, sputtered, backfired, skipped, bounced, "walked," and sat down. Yet there has been only one fatality resulting directly from a missile explosion. And that occurred when a small flare package exploded during a prelaunch operation.

But to cope with the fact that missiles *can* go wild, the Air Force Missile Test Center has developed a comprehensive range safety system. Simple wire and electronic sky screens, tracking radars and closed circuit television are used to detect changes in the missile's trajectory and velocity during the first few thousand feet of flight. If the bird strays while it is on its way down range, an impact predictor calculates where it would plunge if destroyed at any given second—and destruction is delayed until a safe impact area is reached.

The responsibility of deciding when an errant missile must be blown up falls on one of eight Air Force Officers known as Range Safety Officers (RSOs). Under the direction of Senior RSO Lt. Col. Raymond D. Stephens, each RSO is cross-trained, on the job, and specializes on one specific series of missiles.

On the day of a scheduled test, the assigned RSO takes a post in Central Control's operations room behind a pinball-type scoreboard of switches, lights, dials, buttons, plotting boards and TV monitors. As the count reaches zero and the missile pushes off its pad a few thousand yards away, information funnels into Central Control from all directions. The RSO's earphones are jammed with sky screen data, and tracking radars and the closed circuit television screen in front of him furnish visual evidence of what the bird is doing. If the missile veers off course, [*Continued on page* 156]

RANGE SAFETY OFFICER eyes TV monitor as a tense countdown approaches zero.



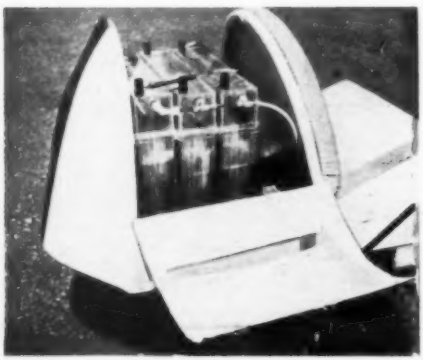
TITAN ICBM belches flame and smoke as it explodes on launching pad, August 1, 1959.

PIECES of Jupiter Intermediate Range Ballistic Missile fall back after destruction.

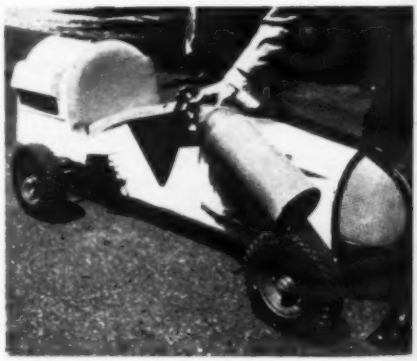
FUEL CELL RACER

TINY RACER is used to demonstrate feasibility of fuel cells. Eventually the makers expect to see the cell used in smog-free, silent, full-size vehicles.

A SMALL racer-style auto is being used to demonstrate the efficiency of fuel cells—new devices that produce electric current directly from chemicals. The fuel cell shown here is being developed by Exide Industrial Division of the Electric Storage Battery Co., Philadelphia. It consists of cells with a positive electrode in the center surrounded by tubes containing negatively charged zinc electrodes. Oxygen is admitted to the fuel cell under nine pounds-per-square-inch pressure to sustain the electro-chemical process. Zinc is oxidized in a potassium hydrozide electrolyte to complete the reaction. •

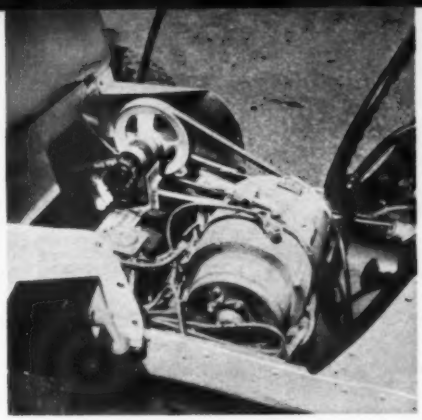


FUEL CELL, about 80 per cent efficient, converts chemicals directly into energy.

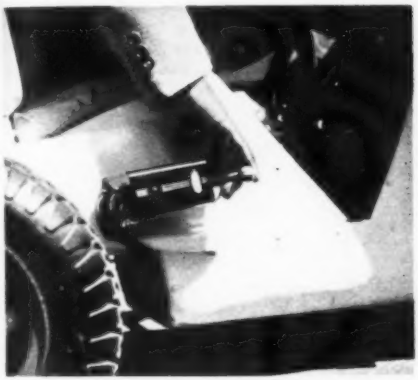


CYLINDER of compressed oxygen is under hood. Oxygen enters cell under pressure.

JUICE is turned on by opening the flow of oxygen to cell to sustain oxidation action.



MOTOR powered by fuel cell transmits power to rear wheels by belt and chain drives.



NEUTRAL position of direction lever is shown here: up is forward, down is reverse.

OPERATING CONTROL of fuel car; when foot is raised car's power is disengaged.

HAND BRAKE stops the car. A racer in styling only, car is a purely experimental model.

OUTDOORS with W. Scott Duncan

Out Of The Mailbag

● *Last spring I bought an umbrella tent that cost me over $100, used it for two weeks on vacation, then put it away in the basement. Recently I took it out and found it so badly mildewed and rotten I had to buy a new tent for this vacation. What can I do now to prevent this tent from mildewing when I store it?*

Bennie Cohen
Newark, N. J.

Mildew that attacks tent cloth is a mold that is ever with us—but it must have moisture and heat in order to thrive. When a tent breaks out with a bad case of mildew, it is because it was not thoroughly dried in the sun before storing or it was put away in a damp, warm place—or both. Dry your new tent thoroughly by pitching it in the sunlight till completely dry after each camping trip. Then brush off all dirt and store in a dry and well-ventilated place.

● *Recently I saw a truck kill a fine buck and continue on its way without stopping. I wanted to take the deer home so I could have its head mounted and store its meat in my freezer but my friend warned me that since it was not open deer season I could get into trouble by possessing the animal. Could I get into trouble by salvaging the meat and head?*

Dan Boyer
Houston, Texas

The Texas Game and Fish Commission says, "When it is illegal to have game in your possession it doesn't make any difference whether you or someone else ran it down accidentally with an auto or shot it. You still violate the law when you possess it." This rule holds in most states today. When you see a dead animal lying by the road it's advisable to let it lie there undisturbed. If it's a large animal such as a bear or deer, you are supposed to report it to the nearest game warden or police.

● *Everywhere I fish, guides tell me that if I want to catch bass I must fish with live bait. If this is true, how come they sell so many lures in stores?*

John Wilson
Denver, Colo.

Most guides prefer to have their customers fish with live bait because then all they have to do is anchor in a likely spot and still-fish. If their sports insist on using lures, guides must paddle or row all day and this is work. You can catch just as many bass with artificial lures as with live bait, providing you know how to use them, and you can have a lot more fun doing it. The next time you hire a guide, insist that he paddle you so you can cast your lures all day. If he won't agree, hire one who will.

● *Several years ago I bought an Aluma Craft boat for fishing in the Finger Lakes in New York. This winter I want to take it to Florida to fish the St. Johns River but am advised that this is brackish water. Will the salt hurt an aluminum boat?*

Bill Yeager
Buffalo, N. Y.

I have received so many questions of this nature that I wrote to Howard Griffin, Director of Sales at Aluma Craft. He says: "Aluma Craft are made from a highly corrosion-resistant alloy. There are no spot welds or welds below the water line and our fittings are all stainless steel or aluminum. We unhesitatingly recommend Aluma Craft boats for fishing in salt [*Continued on page* 160]

"STAND STILL Buster," says MIMI, "and I'll scrub those greasy coveralls for you." Our girl figures you can clean just about anything with her new Titan Spray-Scrubber, especially if it's covered with ground-in dirt and grease. She has already done the basement floor, garage floor, driveway and the siding. The Spray-Scrubber combines jets of water with rugged polystyrene bristles that dig in while the grime's afloat —not after it settles again. Fits on garden hose. Titan Sales Corp., Buffalo, N. Y. $9.95.

mimi

COLT'S

CHIEF George Huntington, Bloomington, Ind., fires at automatic rate of 750 rounds a minute. Note ejected shells.

FIELD STRIPPING and reassembly are quick and easy with functional new rifle.

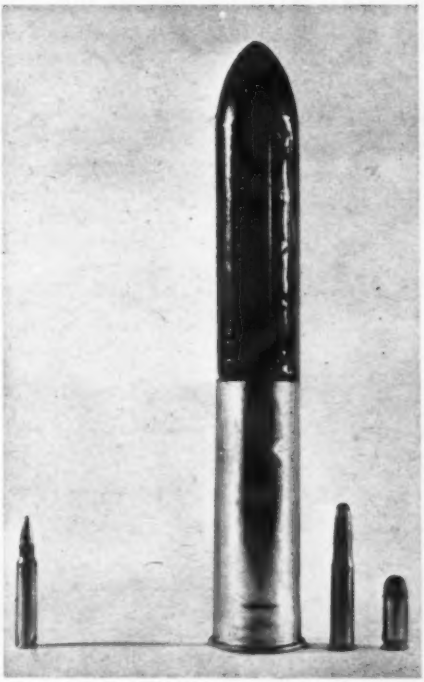
GRENADE launching bi-pod attaches in an instant. Grenade fits on flash suppressor.

REVOLUTIONARY NEW RIFLE...

THE new Colt AR-15, its makers claim, is the world's most modern, most versatile rifle. It is an infantry weapon with full and semi-automatic fire control; it has the accuracy of a sniper rifle, it is compact and has the range and energy of a machine gun and can be used to launch grenades. With its 20-round magazine loaded it weighs only five pounds, 11 ounces.

Made of non-corrosive materials, the AR-15 is unharmed by dampness or submersion in water.

Unusual features of the AR-15 include rubber recoil pad that fits against the firer's shoulder; a combination rear sight and carrying handle; a hand guard that is an effective heat barrier between hand and barrel, allowing a sure grip in any shooting position; a flash suppressor that also serves as a stationary piston so that a grenade may be launched without the use of supplementary attachments. The soldier can go from regular .223 ammo (comparable to .22 magnum) to grenade launching in a trice. Designed by Armalite Division, Fairchild Engine and Airplane Corp., it is manufactured by Colt's Arms. You can't buy it unless you're an army or a police department—no citizen may own a fully automatic gun.—*Hartley Alley*



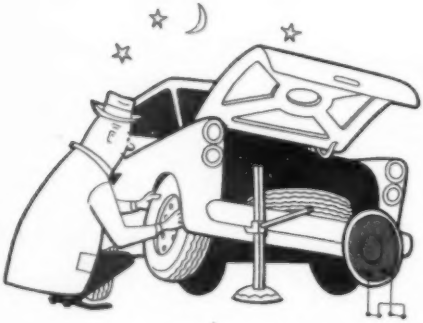
AMMO for AR-15, left, and ammo for tear gas gun, scope rifle, tommy gun it replaces.

HANDY: rear sight carrying handle, swing-down trigger guard for use with mittens.

RESTING steady on fingers, AR-15 fires automatically. Tommy gun must be held down.

ELECTRICALLY heated tarpaulin laid over a snow-covered driveway would save shoveling. Royal Basky, Benton Harbor, Mich.

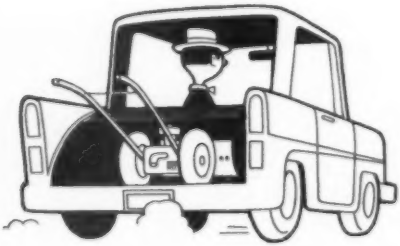
ADAPTABLE BOOTS would have zip-off tops that could be removed, leaving a pair of rubbers. Terry Endres, Waunakee, Wis.



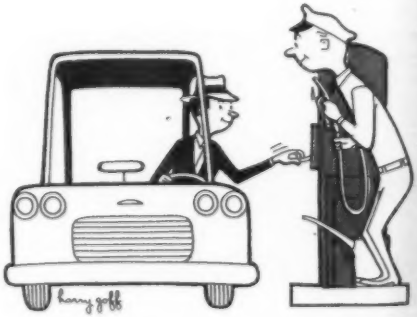
HUB CAPS with built-in reflectors would warn other drivers you're changing tires at night. David King, Paso Robles, Calif.

INVENTIONS WANTED!

Is there a gadget you think should be invented? If so, send its description on a postcard to Inventions Wanted Editor, MECHANIX ILLUSTRATED, 67 West 44th St., New York 36, N. Y. Each one printed will be awarded $5. Entries not selected cannot be acknowledged or returned.



ROLL-UP trunk lid would permit carrying oversize loads without obscuring rear view. Ronnie Dee Carrell, Duncanville, Texas.

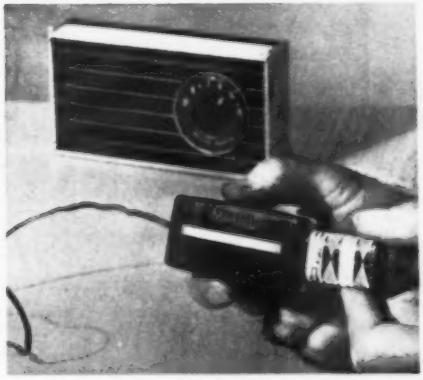


GASOLINE PUMPS would dispense itemized sales receipts for tax-conscious traveling salesmen. Joey Kasha, Herington, Kansas.

IT'S NEW!

EYE CAMERA developed at Defence Research Medical Lab in Canada uses battery-powered helmet camera with periscope lens. It photographs actual object on which eye focuses, by means of reflected rays of light.

WIRE SUIT is worn by volunteer at R.A.F. Institute of Aviation Medicine. Knitted of resistance wire, the suit is used to research skin temperatures under stress.



BATTERY CHARGER for transistor radios also allows you to use set without batteries by plugging it into wall outlet. It replaces the conventional 006-P 9V cell.

$4.00; P. A. Brown, 54 Ruxton Rd., Great Neck, N. Y.

CONTINUED...

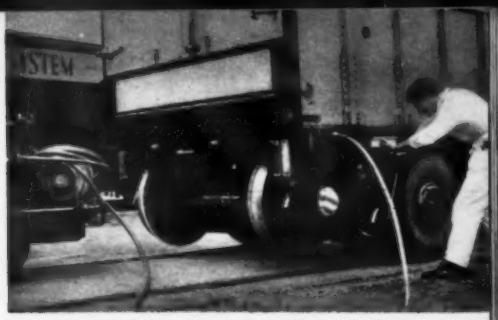
UNIQUE VEHICLE links horsepower and horse power. Cart was built onto truck's front end during filming of movie Spartacus to reduce bumping.

NEW MODEL of Hiller Flying Platform has seat for pilot, uses helicopter-type controls, is much faster than the original.

SCRAMBLER for telephone uses batteries, converts voice into babble, unscrambles incoming jargon. It drives tappers wild!

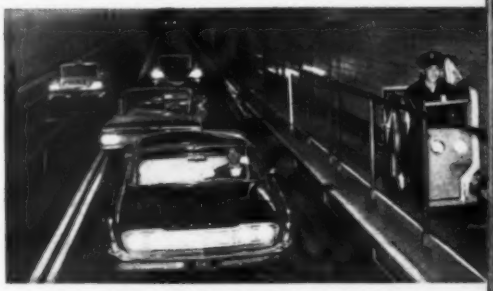
$219; Delcon Corp., 943 Industrial Ave., Palo Alto, Calif.

DOUBLE-DECK Dodge, vintage 1956, is the handiwork of John Swanberg, Minneapolis. It cost $1000, sits or sleeps three extra.



ROADRAILER is English trailer with double set of wheels for railroad tracks or for highway. Compressed air switches wheels.

FIRST CAR produced by United Arab Republic is two-cylinder, air-cooled Ramses U.S.-trained maker claims it gets 55 mpg.



CATWALK CAR is tested by officer in Manhattan's Lincoln Tunnel. Gas-powered car runs on single track, has eight-hp engine.

MONOGRAM'S new Customizing Auto Engine model kit is one-eighth size Chevy V8 engine. It has 135 parts, allows you to make stock, drag or racing models. Parts of kit are colored, snap together for quick assembly. Kit costs $2.98, has a separate battery-powered electric motor for $.98 which runs engine.

my 15 years of car testing

By Tom McCahill

IN 1951 Tom won the NASCAR Speed Trials for stock sedans with a '51 V8 Chrysler New Yorker. His average was 100.13 mph.

Here are the highlights and big moments in Uncle Tom's career as America's Number One car tester!

JUST 15 years ago, in the February 1946 issue of MI, we brought you the first automobile tests ever published in the United States. Since then, nearly every guy who owns a stopwatch and has a working knowledge of a gas station has crowded into the act. Some character once stated that imitation is the sincerest form of flattery. If this is true, then I'm the most flattered bald-headed wheel-twirler alive.

It's been a great and screwy 15 years and if I had to do it all over again, I certainly would. In the past 15 years there have been many improvements in things automotive but twice as many substitutes for the real thing. Every time some company claims they have "a new and improved" whakamahazzut, chances are it means they've just figured out a way to make the same part for half the price. Quality control is much worse than it was 15

CORNERING the 2.4 Jaguar in 1956, McCahill reported it grooved "like peanuts going through an elephant's trunk."

years ago in nearly all camps and the prices of all products have pretty close to tripled.

The first cars we tested were the '46 Ford and the '46 Buick. Actually, these tests were made early in the fall of '45. I liked the Ford, ordered one and took delivery shortly afterwards. It was one of the first 100 post-war Fords sold: a two-door deluxe creampuff with every available accessory of the day included. The delivered price (which I paid in full in New York City) was $1,184. Before skipping over this price, it should be pointed out that it's nothing at all today for any of the big three cars to *depreciate* this much in a year! I bought my first Cadillac, which we tested on these pages, in 1950 and paid the full showroom price in New York City, including city sales tax. It totalled less than $3,000.

Through the years I've tested many great cars and twice as many real dogs. I've also tested some great cars that failed. In 1948 when I tested the Tucker,

UNCLE TOM with Gen. Curtis LeMay at Le-Mans, 1952. The General is a fast car fan.

JOE, Tom's famed Labrador Retriever, was mascot of Cunningham LeMans team, '52.

LOCOMOBILE Steamer, with McCahill at the tiller, did a nifty 37 mph in 1958 race!

GAG PHOTO showed Tom getting a batch of tickets for 129.9-mph run in '55 T'Bird.

it was the finest-performing car ever made in America to that date. This rig was down the drain before it could float for a number of reasons, which might include high-class sabotage, government pressure and the lack of big-time production and merchandising knowhow. To top all this, some yellow journalism by major publications to the effect that the entire car was a fraud didn't help much either.

Another interesting car we tested was the three-wheeled Davis. It had fantastic roadability and cornering properties that would make a Grand Prix Ferrari look like a 1914 ice wagon. The Davis also failed from lack of funds. The list of cars we've tested that are no longer with us grows longer with every passing year. It would include the Keller, Playboy, Bobbicar, Willys Aero Ace, front- and rear-wheel-drive Kaiser and Frazer, Packard, Hudson, Henry J, Hudson Jet, Crosley, Motorette, Cunningham, Kurtis-Muntz, Nash-Healey, Edsel and DeSoto, the most recent casualty. These cars were all tested on these pages and are now just a part of automobile history.

One of the biggest stories we ever did was about the MI Ford. It was published just 11 years ago this month (How To Hop Up Your Car, February 1950 MI). This was a standard 1949 Ford sedan to which we kept adding hop-up parts of the day, reporting on what each step did to performance and cost, until eventually the car got to a top speed of 112 mph and could bang out 0-60 mph in ten seconds, which was fabulous performance 11 years ago. I still get many letters each year about this article.

Another test we ran, in October 1950, was of the Volkswagen. I get a particular boot out of this one because most people thought I was nuts. I went overboard for the little car and said it was a terrific buy and a wonderful piece of transportation. Readers wrote in saying I'd lost my senses. By that time we had some competitors in other magazines who indicated that McCahill had taken the pipe, that the VW was just a cheap pile of nothing. One big-time New York daily newspaper even took me to task for suggesting the VW had any merit.

OWNER of Rolls-Royce swallowed hard watching Tom put luxury car through a test.

SPORTS CAR craze in America started with this MG-TC. Tom tested it in California.

You know the history of the Volkswagen as well as I.

In 1951 the big talk of the industry was the forthcoming Chrysler V8. Three days before this car was introduced, I talked Brewster Shaw, the Daytona dealer, into letting me take one of his pre-introduction models out for a trial run. With just over 400 miles on the speedometer, we entered the car in the National Speed Trial Championships at Daytona Beach and I won the event (much to the surprise of everyone, including me) with a two-way average speed of 100.13 [*Continued on page* 161]

FIRST CAR tested in MI was this '46 Ford. McCahill's report was first U.S. car test.

HOTRODDER TOM hit 140 mph in '49 in this souped-up 220-hp racer.

THE PONTIAC

Uncle Tom tested this new compact by

By Tom McCahill

I NEVER guaranteed you anything before but I'll guarantee you this: Jim McMichael and I just finished the screwiest California to New York coast-to-coast "economy run" ever recorded. Now, as all you hipsters know, the usual purpose of an economy run is to find out how many gallons of juice you will consume in getting from good old Point A to good old Point B. This type of test is quite often loaded with tricks and run at speeds appropriate to migrating

THE RACE BEGAN in Chicago where Tom said good-by to his wife and put her aboard the 20th Century Limited, New York Central's crack passenger train.

TEMPEST

racing the 20th Century Limited—and he won!

snails. But, brother, this Tempest test was different!

I had arranged with Bob Emerick of Pontiac to have a new four-cylinder, single-pot Tempest available to me when I arrived in California. Bob said the little bean sprouter would be there ahead of me. I had planned several days of "Getting-to-know-you" runs which would give me time to figure the best speeds for economy and also give me a clue as to what this cricket could do. If you know my way of life, which is generally fouled-up, the arrival of the Tempest test car was typical—it didn't show up. Somewhere between Salt Lake City and Las Vegas, the truck carrying it from Detroit got lost, delayed or something. This was three weeks before the car's official introduction so California dealers had none in their showrooms for us to grab. The first time I ever saw a

THE RACE ENDED in New York with Uncle Tom and Jim McMichael waiting more than two hours for Mrs. McCahill.

CROSS-COUNTRY economy run began in Los Angeles. It was first time Tom saw car.

HEADING out of Los Angeles, McCahill decided to do economy run at tourist speeds.

Tempest (Scout's Honor) was at the Hollywood-Roosevelt Hotel when I went down to the garage, got in a smallish car, turned the key and the coast-to-coast run was on; the car had arrived the night before.

Our first run was rather short because I had slept late but I'd made up my mind before starting: "To hell with regular economy speeds—let's do this one at a more typical tourist rate and average at least 50 mph." Norm Dunn, another Pontiac man in a new Bonneville, was assigned to accompany us. At Needles, Calif., just under 300 miles from our start, we made our first gas check. To our complete astonishment, after an average speed of 50.2 mph, our gas consumption was a seemingly ridiculous 31.1 mpg! Dunn called the factory and they seemed to think it was pretty silly, too, and indicated no one would believe it. So we decided to pick up more speed.

Our next check-in spot was Gallup, N. M., where our average speed was up to 51.8 and the gas mileage down to 28.3 mpg. The factory was still unhappy, so we decided to go still faster. About this time, in all fairness, it should be explained that the Tempest was equipped with a Pontiac Magi-Cruise which we've written about so often. This gadget, which holds the throttle rock-steady anywhere you set it (even over some of those choppy western roads) in my opinion increased our gas mileage by as much as two to three mpg. Incidentally, when I inquired from some Pontiac dealers why they didn't sell more Magi-Cruise units which merely add 12 bucks to the price of the car, I was told that the price was too low to interest the average salesman who would rather peddle a $98 power seat or a $97 roof rack for a higher commission. That's a sad commentary on American sales integrity because this little gadget did make the difference.

At Shamrock, Texas, 540 miles later, at an average speed of 52.1 mph, our gas average was still up at 28.9, helped by flatter country and a good tail wind all day. Four days after leaving California we pulled into Chicago with an average speed of 52.4 mph. Our gas average for the trip was 28.2 mpg. Then came the truly screwy part of this test.

TEST CAR SPECS

MODEL TESTED: **1961 Pontiac Tempest** four-door sedan
ENGINE: **4** cyls; **194.5** cubic ins; **140** brake hp; **207** ft-lbs max torque; **10.25** to **1** compression ratio. Bore **4 1/8** ins; stroke **3¾** ins. Fuel required: **Premium.** Axle ratio: **3.08.** Wheelbase **112** ins; length **189.3** ins; height **53.5** ins; width **72.2** ins; front tread **56.8** ins; rear tread **56.8** ins. Weight **2,910** lbs. Gas tank capacity **16.5** gals. Turning circle diameter **41** ft. Tire size **6.00x15.**
PRICE (without optionals): **$1,975.**
PERFORMANCE: **0-30** mph, **5.1** secs; **0-60** mph, **13.5** secs; **40-60** mph, **6.6** secs. Top speed **95-100** mph depending on axle ratio, carburetion and tune. All times recorded on corrected speedometer.

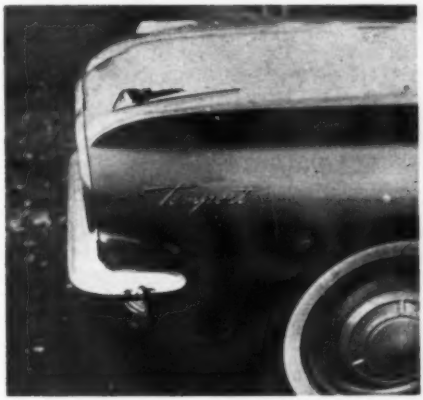
FIRST gas check revealed incredible 31.1 mpg—so Tom decided to pick up more speed.

COMING into Gallup, N.M., average speed was 51.8 mph and the mileage was 28.3 mpg.

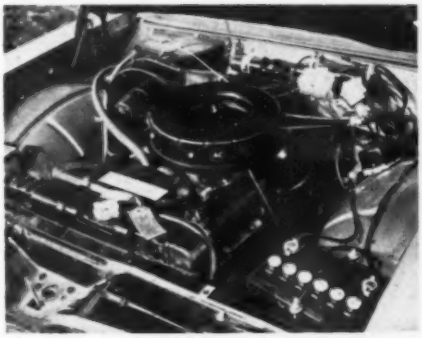
I bought my wife a $90 ticket on the 20th Century Limited, generally conceded to be the fastest train in the east. We split up the baggage, leaving a good 200 pounds of it to carry in the Tempest. (Norm, who had been carrying most of it in the Bonneville, took his own as he was going home and would leave us at Toledo.) We then got set to race the 20th Century to New York! The train pulls out of Chicago heading east at 4:30 p.m. In a minor ceremony (including an outside photographer and some Pontiac engineers who were on hand), I kissed my wife good-by, put her aboard the 20th Century with all our excess baggage and waved so-long as the train pulled out. Nine minutes after the train had cleared the station we were back in the Tempest, heading east—and to hell with the gas mileage.

We had a master New York Central timetable with us and knew we were about two minutes ahead of the train at South Bend, Ind. Our average speed was now running pretty high (well over 60 mph). Bear in mind, this was the four-cylinder, half-a-V8 Pontiac engine with a single one-barrel carburetor (though it did have the high-compression heads, which meant premium fuel all the way from the coast). Everything was going just great—until the roof fell in about 20 miles west of Toledo; we ran into a pea-soup fog which restricted vision to less than two car lengths.

Hoping this was just temporary, we dropped speed [*Continued on page* 167]



STYLING and performance drew bravos from McCahill, particularly the 15-in. wheels.



TEST CAR was four-cylinder, single-carb job. Tempest also comes with aluminum V8.

BRIGHT IDEA AWARD
MECHANIX ILLUSTRATED

LUG LOADER

CLEAN-FINGERED wheel replacement: as each lug nut goes on, another moves up inside the spring-loaded shaft of the wrench. At right, the business end of the wrench, showing how the empty shaft receives the first lug nut. New wrench keeps hands clean; prevents misplacement of nuts.

WIN $50

MI will award $50 each month to the first person who tells us of a new and useful gadget that is patented and in production. Manufacturers are also eligible for this award. Pictures and a description should be sent to Bright Ideas Editor, Mechanix Illustrated, 67 West 44th Street, New York 36, N. Y.

THIS new Craftsman lug nut wrench holds all the nuts as they are removed. Its spring-loaded shaft enables the user, after taking off the first nut, simply to put the wrench on the next one and continue. The first nut is pushed deeper into the shaft to make space for the second. All the nuts are held securely in the shaft until the wheel is replaced; then the last nut taken off is ready to go back on. As it leaves the shaft the next nut is forced into position by the spring. The user never touches a nut and never loses one. A half-inch drive socket base allows wrench to be used with the Craftsman impact wrench or a similar drill. Sears, Roebuck, $3. •

SPECIAL SECTION . . .

BOATING 1961

A collapsible yacht that you can carry!

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Houseboats and fun floats!

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Fantastic bargains— surplus U.S. boats!

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Page 102

Sailboats; powered rafts!

Page 104

All about low-cost vacation cruising!

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Page 112

A round-up of all the latest boat models!

Photos and specs on all the new engines!

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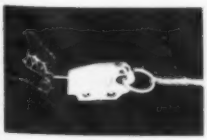

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New accessories and kits!

Page 128

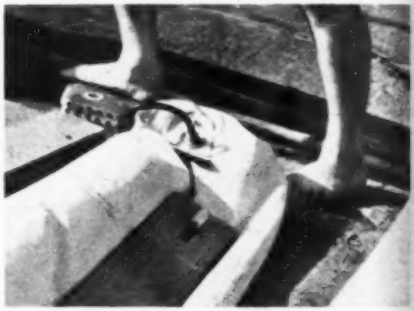
BOATING 1961

A YACHT YOU CAN CARRY

BOATING is borrowing a trend from the auto industry and turning to "compact yachts," and they can't get much more compact than the Seapet, a Japanese-made craft that's being sold over here from Los Angeles to Toronto.

Packed into two easily handled bundles, the Seapet weighs 70 lbs. Unpack it, inflate the double-boom hull (two nylon and rubber pontoons), step the mast, hoist sail—and you've got a 12-foot-high "yacht" that's eight-and-a-half feet long with a three-foot, four-inch beam. The sail is polyester fabric, and the Seapet has conventional small sailboat controls. It can carry two adult passengers or four "sailing brats." Price? About $325. •

SEAPET can be packed in two canvas bags, one three feet long, the other six feet.

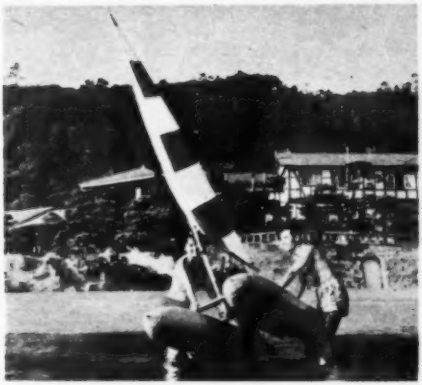


PONTOONS of nylon and rubber are inflated by means of an easy-to-operate foot pump.

CROSS-MEMBERS are attached to keep craft rigid. Forward brace provides mast step.

PLYWOOD deck is bolted to braces. Seapet comes with conventional rudder controls.

SAIL of synthetic fiber is rigged on the two-part mast (longest part is six feet).

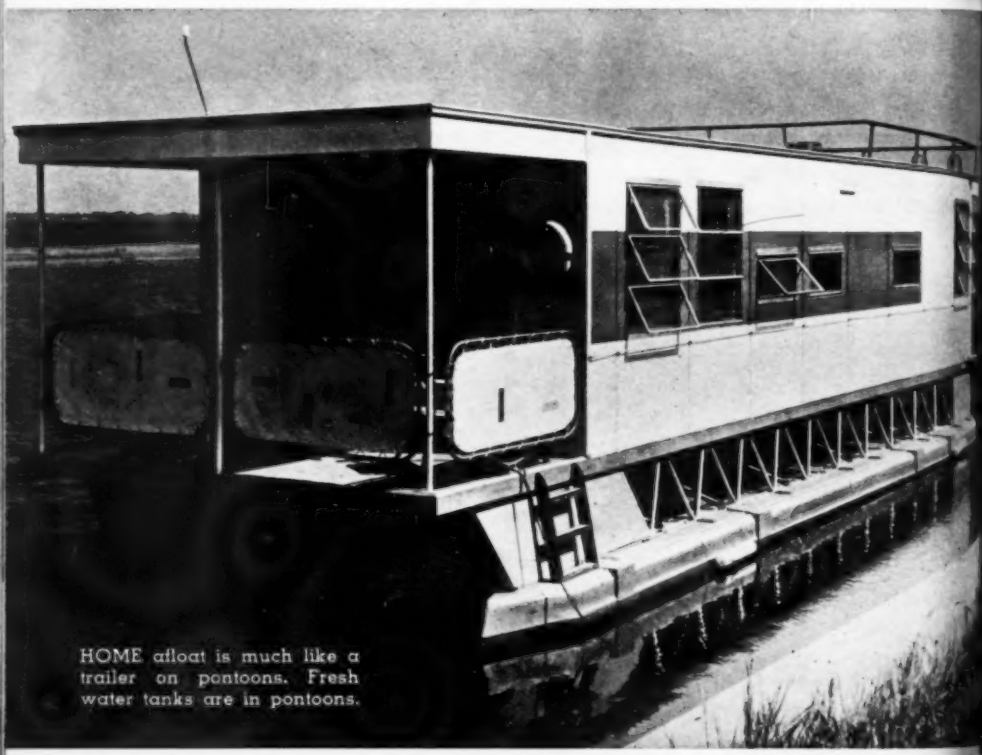


TWO PEOPLE can easily lift the Seapet into the water. Total weight is 70 pounds.

IT HANDLES much like a small U.S.-made sailboat but is able to turn in an extremely short radius. It sails two in comfort.

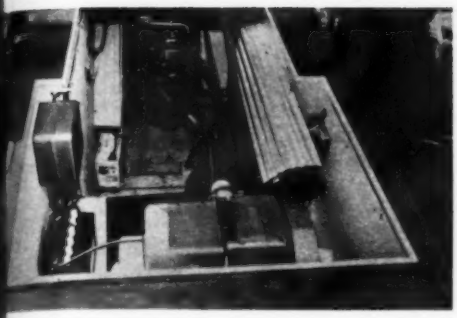
BOATING 1961

HOUSEBOAT ON PONTOONS



HOME afloat is much like a trailer on pontoons. Fresh water tanks are in pontoons.

GENERAL Panel Corp., Ft. Myers, Fla., has a new houseboat it will gladly build for you for $12,000 to $30,000, depending on size and fixin's. Walls, roof and floor of the house are of foam plastic sandwiched between sheets of hardboard. The pontoons themselves are of foam polystyrene. A novel feature is the engine pod under the forward part of the house; this floatable, detachable unit contains fuel for engine and household uses, an electric plant and an 85-hp Volvo Penta inboard-outboard six-cylinder engine that turns 180 degrees for maneuverability.—*Rolfe F. Schell*



ENGINE, gasoline, butane and electric plant are all underneath in floatable pod.

LADDERS give access to pontoons, make it easy for swimmers and paddlers to board.

GALLEY stove uses butane; the refrigerator uses butane or electricity.

LIVING room doubles as dining room at mealtimes, sofas convert to beds at night.

PILOT house in bow is startlingly domestic. Translucent door is made of plastic.

BOATING 1961

FOLD-UP FLOAT FOR FISHERMEN

FITTED with a three-hp Johnson (above) or paddled by hand (below), the fold-up float is a slow and easy way to cover a lake or pond, chasing fish.

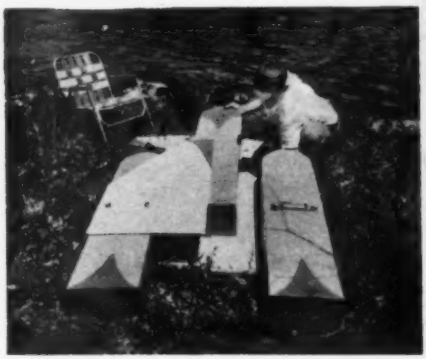
DICK BRACKETT of Natick, Mass., likes to fish—particularly in secluded waters far from the madding crowd of other anglers. But Dick didn't enjoy the back-breaking work of portaging a heavy boat from highway to lake shore or pond.

The solution? The Portacraft—a Brackett-designed and built fishing platform. It's a fold-up float that can be paddled or fitted with a small outboard (three hp tops). The Portacraft consists of three floats of styrofoam covered with fiber glass. The floats are connected to two decks of plywood, a lower and an upper. An aluminum lawn chair completes the unique craft.

BUILDER Dicket Brackett loads the float into his station wagon, ready for a trip.

PORTAGE from highway to lake is easy as the complete Portacraft weighs 40 pounds.

CARRYING handle is taken off before top deck is bolted on. Then handle is added.



CONSTRUCTION is simple: the three floats are bolted to upper, lower plywood decks.

The Portacraft weighs 40 pounds and is easily carried in a station wagon—or even in a sedan trunk. It assembles in five minutes—using mostly wing nuts—and will support a weight of 300 lbs., which makes it a fine swimming float for kids.

The Brackett fishing float has attracted so much admiring attention that the proud designer is considering starting a business to manufacture them commercially. He figures he should be able to sell the Portacraft for about $90—cheap enough for those fishermen who want privacy and easy portaging for reaching those out-of-the-way tarns that teem with good fish dinners. •

FOLDING garden chair of aluminum tubing with short legs hooks under motor mount.

BOATING 1961

HOW TO FIND BARGAINS IN

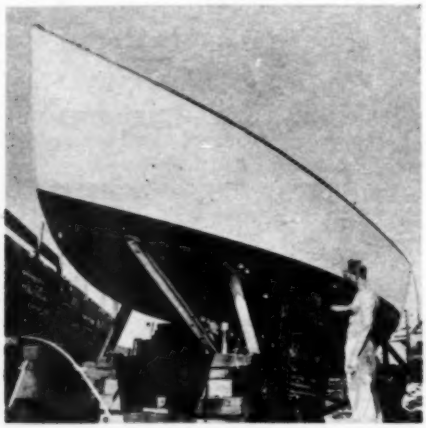
By James Joseph

BARGAIN boat hunters are getting a new break from the government nowadays. The Department of Defense has reorganized the selling of all military surplus property under 35 Consolidated Surplus Sales Offices. One aim of the reshuffle is to open Uncle Sam's surplus grab bag to direct users—among them the humble pleasure skipper and fisherman.

What sort of surplus boat does the small boat-buyer get? Here are some typical examples:

For $325 a Wisconsin man got a 26-foot utility boat with a 50-hp diesel engine, a nine-knot speed and a range of 100 nautical miles. Original cost: $13,540.

A 24-foot personnel boat with a 100-hp diesel and a 13-knot speed went for less than $300. Original cost: $9,830.



WHALEBOAT cost buyer $225, is being converted to auxiliary sloop by proud owner.

A Californian bid $175 for a 26-foot motor whaleboat with a 25-hp engine and a 110-mile range, got the boat. Original cost: $9,070.

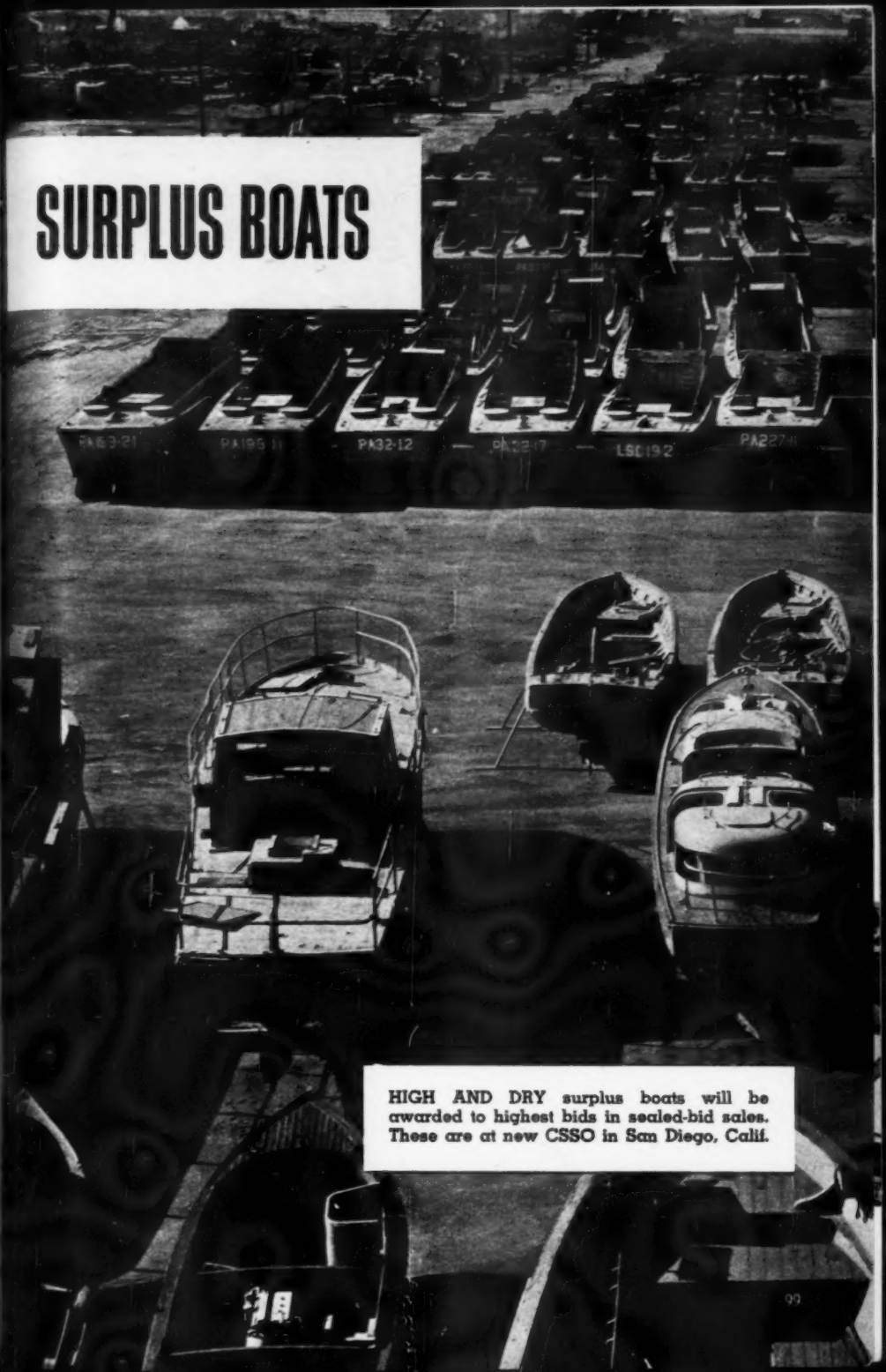
Many a surplus boat is loaded with surprises. One man bought a boat by mail order and found the engine still packed in grease; it had never been run. Boats laden with special equipment can sometimes pay for themselves; a purchaser of a Navy landing craft sold the armor plate, bow gate and pulley blocks for $85, the two 90-gallon fuel tanks for $35 apiece, ended up with the boat he wanted and a $5 profit.

As a dealer in pleasure boats Uncle Sam isn't ideal, of course, because he doesn't have any sea-going toys. But workboats often convert well to pleasure craft for a small outlay of cash. A pair of sail enthusiasts who wanted a sloop bought a $7,000 whaleboat for $225, conversion plans for $100. The plans were a stock item sold by naval architect C. William Lapworth; like many in his profession, Lapworth sells conversion plans for several types of surplus hulls. The finished auxiliary sloop is easily worth $5,000.

Possibly some reader is appalled at how the government is losing money. For the comfort of such honest citizens, the Defense Department has found the present surplus system to be the least costly after much hard thought on the matter. The problems of obsolescence and routine wear-and-tear in a modern defense system keep Uncle Sam loaded with boats he doesn't need. The best solution is to sell them to the public at the best price that can be obtained.

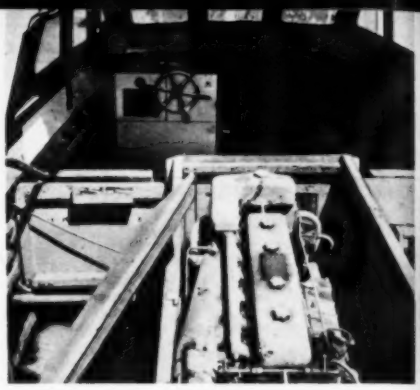
So far I have listed bargain boats that turned out to be incredibly good buys.

SURPLUS BOATS

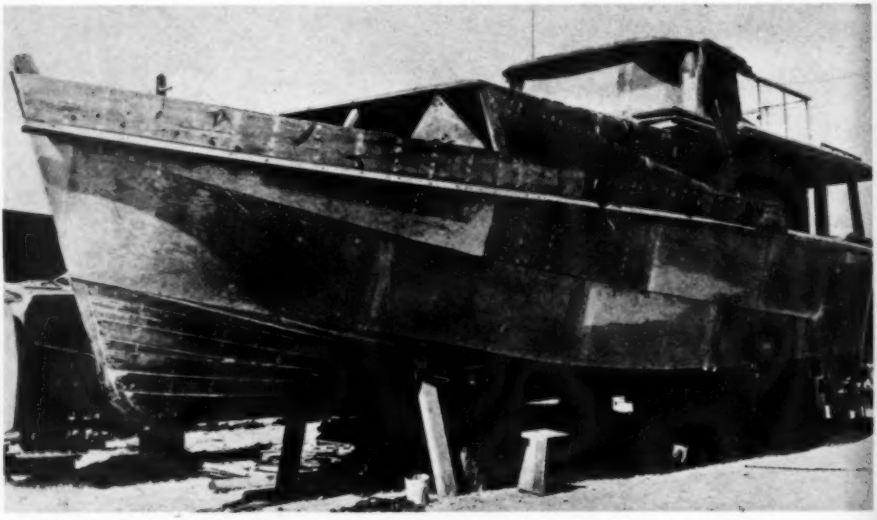


HIGH AND DRY surplus boats will be awarded to highest bids in sealed-bid sales. These are at new CSSO in San Diego, Calif.

HOUSEBOAT craze has helped sell many surplus landing craft like this redone LCVP.



INTERIOR of an "as is" bargain. Landing craft once cost $14,000, may sell for $700.



FORMER LCVP—but you might not guess it, with that elegant new water-cleaving bow.

Are these the exceptions? No, say the CSSO disposal officers. One California boatyard recently sold 33 LCVPs (36-foot landing craft), originally priced at $9,500 each, for an average $132. A fleet of 85 LCVPs with 225-hp diesel engines, originally worth $13,500 each, went for an average $627 each. Seven personnel carriers, tagged at $10,000 each when Uncle bought them, went for $71 apiece to the waterfront sharpies. Real sea-going bargains!

"Bargains, yeah," says one wharf rat of my acquaintance, "if you're looking for kindling wood." And he's only one of many who have gripes about surplus boat disposal. But let's take the most common complaints of the surplus-wise characters, one by one, and see how they stand up against the facts.

Surplus boats are nearly all tired veterans of World War II.

This is true only of *some* surplus boats. Many are post-Korean keels, retired for reasons that mean nothing to the guy who wants a fishing or pleasure-cruising craft. The point is, minor repairs on any hull cost Uncle much more

OFFICER inspects LCPLs up for sale. Without engines wooden boats go for about $70.

SOUND HULLS of these motor boats may be in "poor condition" by Navy standards.

than they will cost you—especially if you can chip and paint yourself. What rates "poor" in the Navy can be a dreamboat to the private sailor.

Surplus boats are odd-balls—landing craft and the like.

There have been lots of landing craft sold but the fact is that Uncle sells everything from nine-foot sailboats to 20-knot rescue craft. The Navy alone sells 45 different models—for a catalog see Boats Of The United States Navy. It's Document 3356742 at the U. S. Government Printing Office, Washington 25, D. C. $.60.

The big buyers get all the good boats; the average hull-hunter gets junk.

This heart-rending whine may have something to do with the regulation that government agencies, federal and state, get first choice of boats up for sale—and after them the Boy Scouts and other service groups. But in fact these buyers pick up less than ten per cent of the government's bargain boats.

Once upon a time, after World War II, collusion among boat auction bidders—salvage, export and shipyard representatives—skimmed off the cream of the surplus boats. But now sealed bids are the rule—and that's a rule that protects the individual boat buyer.

Surplus boats have been beached so long that their seams are agape and their engines need a major overhaul. No one ever sailed away from a surplus boatyard in his newly-purchased boat.

As a matter of fact, most surplus boats do need a lot of work. But one CSSO boatyard man [*Continued on page* 171]

METAL WHALEBOATS are among easiest boats to convert to use with motor or sail.

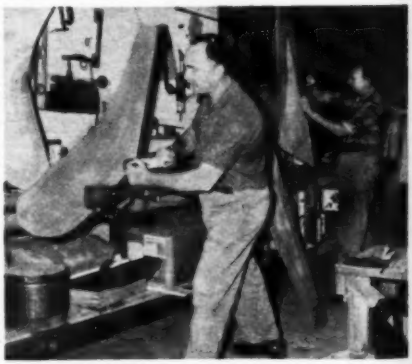
DIESEL-power LCPLs with 225-hp motors, wooden hulls, in the San Diego boatyard.

BOATING 1961

THEY MASS-PRODUCE

MASS PRODUCTION on a cooperative basis cut the cost of each of these boats to $350.

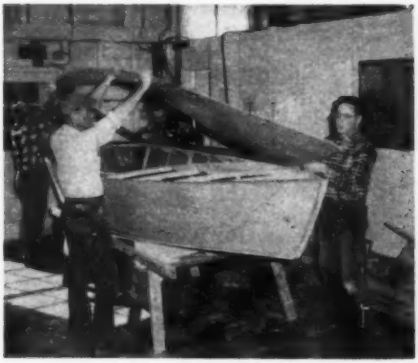
CUT AND JOINED frames are delivered to boat assembly plant by Wet Pants member.



OTHER MEMBERS put finishing touches on a rudder (left) and a centerboard (right).

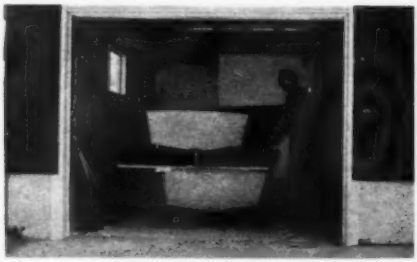
SAILBOATS--AT HOME!

EVERYBODY pitches in. This fellow does his bit by planing down the boats' chines.



PRE-CUT DECK is jockeyed into place and fastened to gunwales of another Blue Jay.

NEARBY GARAGE served as the factory where the trim little craft were assembled.



ASSEMBLED BOATS were carefully stored. In the spring they were rigged and launched.

SHADES of Henry Ford!

Out in Sayville, Long Island, a score of members of a sailing fraternity happily known as the Wet Pants Association produced a little fleet of Blue Jay Class sailboats on an assembly-line basis. The work was done in members' basements and workshops.

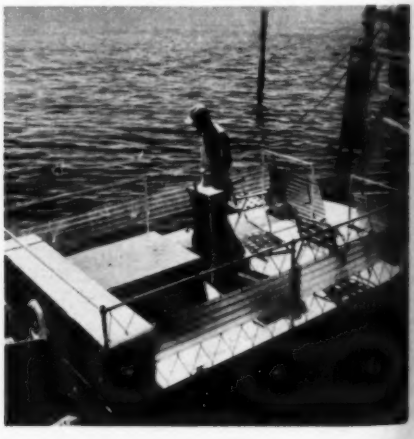
Starting in the middle of winter each member put in some 15 hours of spare-time work every week turning out one or more parts for the boats. Early in the spring, the sections were brought together in a garage and assembled into 23 fully outfitted boats for the builders and their families.

This large, economy-size construction project proved a moneysaver all around. Blue Jays retail for $1,000 to $1,400, but as a do-it-ourselves enterprise the Wet Pants boys cut these costs 75 per cent by each chipping in $350 for materials and doing his share of the "piece work" and assembling. •

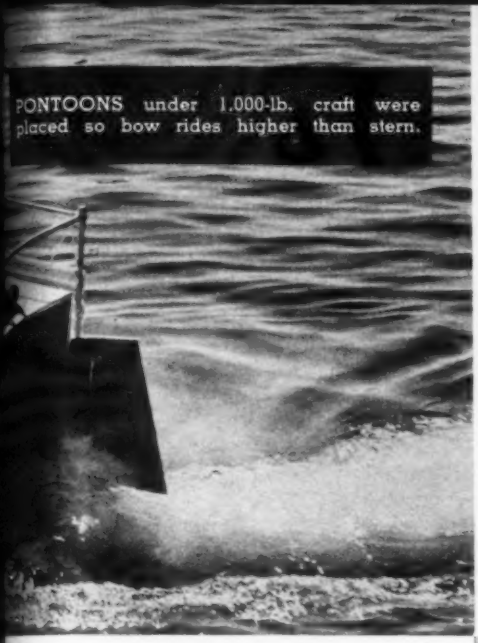
AN electrical contractor of East Hampton, Long Island, has designed and built one of the most unusual craft to be seen in nearby Three Mile Harbor. Ronald Rioux started with two surplus wing tanks and used them as pontoons beneath an 8X14-ft. deck of marine plywood. For power he installed a 25-hp Evinrude amidships, between the pontoons, and gave it an inboard appearance (at the same time cutting down on noise) by covering it with a housing with a removable top.

Around the sides of the deck is a rail made of electrical conduit and blue fiber glass. Easily installed corner poles will also support a jaunty awning for hot, summery days. The awning is stored in rear locker when not in use, can be put up in three minutes in case of a sudden

OUTBOARD is mounted between the pontoons. Housing gives it looks of inboard.



FOLDING aluminum garden chairs provide extra seats. Rio's Riot will carry eight.



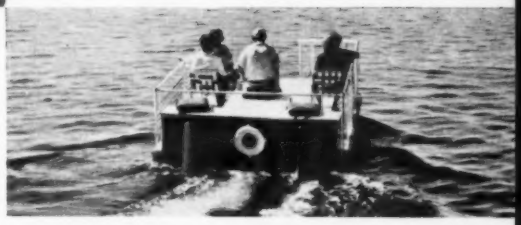
PONTOONS under 1,000-lb. craft were placed so bow rides higher than stern.

BOATING 1961

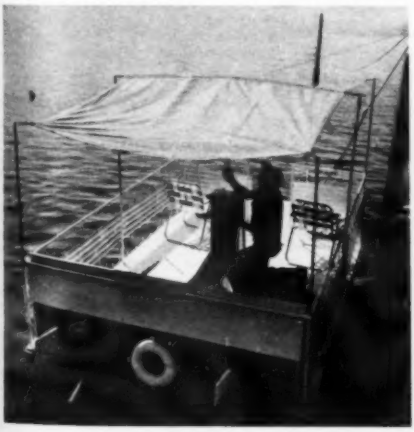
STRICTLY FOR FUN!

squall, not uncommon on those waters.

Up front are two wire baskets for fish, steaks, cold beer and other important cargo. Standard outboard controls are used with a covered wheel stand. Ideal for fishing in calm waters, Rio's Riot is also fine for sea-going picnics and pleasure cruising. Rioux estimates his costs as $250 plus five months of night and weekend labor. •

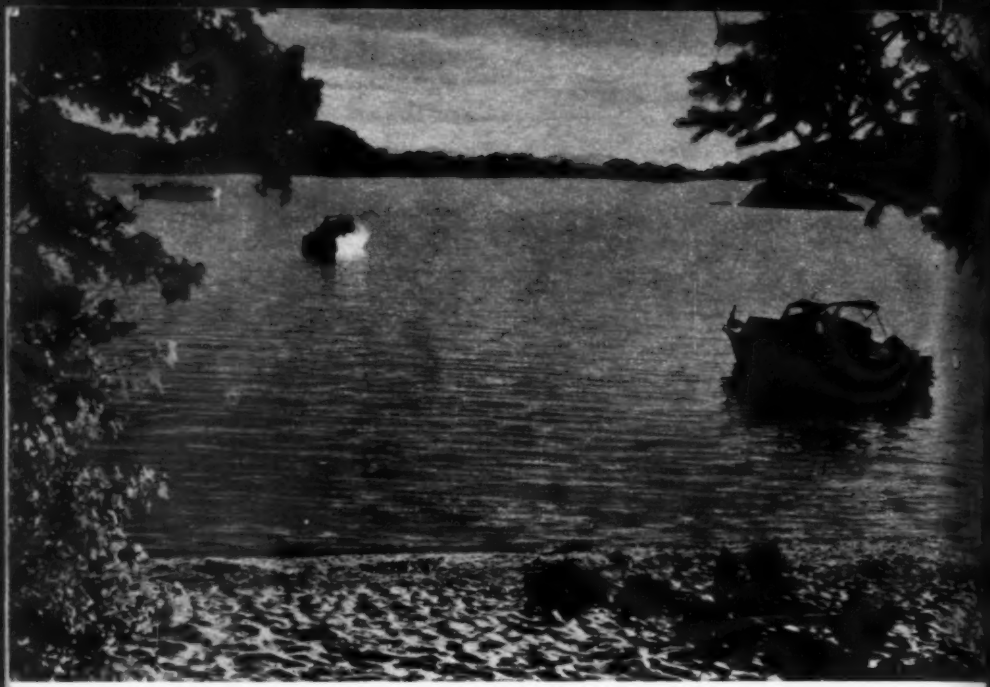


TWIN RUDDERS linked to wheel provide control. Almost all the parts are surplus.



AWNING carried in rear locker can be put up in three minutes on pipe attachments.

STANDARD outboard controls are used in a wheel stand easily removed for servicing.



BOATING 1961

Vacation Cruising

North America's navigable waterways offer top-notch vacations to boat owners who extend their horizons.

By Jack Smith

A TRIP in your own boat makes a terrific vacation—and you don't need an expensive yacht! We've traveled over 1,000 miles at a time in a 14-foot open runabout, and farther still in a 19-foot outboard cabin cruiser.

That's the cruiser in the foreground of the photo above, silhouetted by a setting sun in a vacation paradise far from home. The bay, rimmed by mountains, was ours for every kind of water sport. The beach was ours, too, for exploration, a cookout or lolling in the sun. Free! There was even a welcome sign, requesting only that we leave the place as we found it.

What more could you want for a vacation? Well, there's a lots more. In fact, at different ports of call you can find just about anything you'd want to do. The waterways of the United States and Canada offer endless variety, from

SMALL BOAT and small tent are the main requirements for an adventurous pair who want to combine water travel and camping.

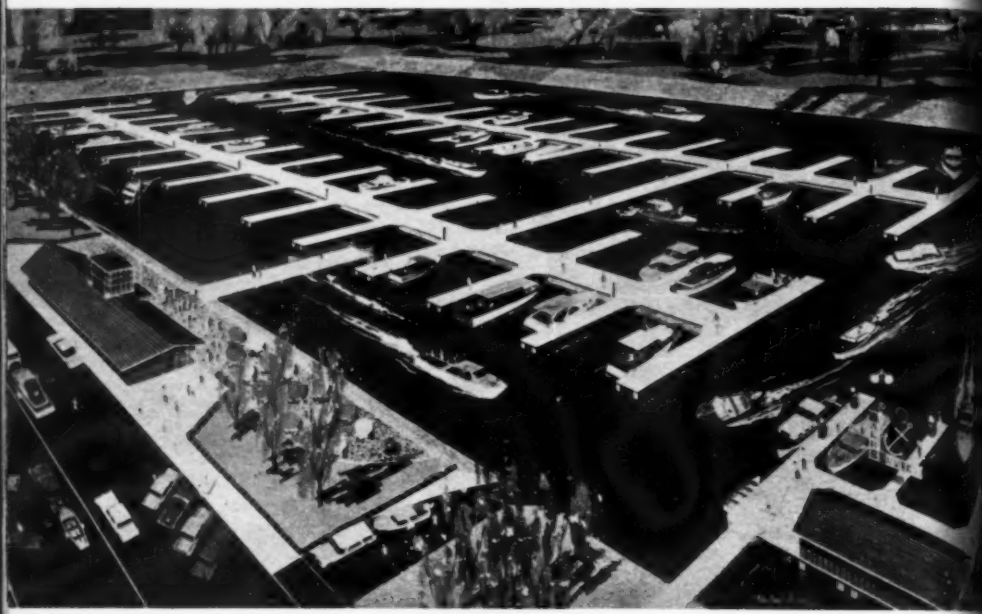
Photo courtesy Scott Outboards

HISTORIC SIGHTS such as battlefields, forts and museums are found along the waterways. Here, a Keller Kraft powered by twin 40-hp Mercury motors heads in toward a dock provided for water-borne visitors to the whaling museum at Mystic, Conn.

CABIN CRUISER offers more comfort, with bunks, galley, marine toilet and the room to walk around—even if only a few paces.

HOUSEBOAT is the closest thing to home you can get and the mobility gives advantages you don't have in a summer cottage.

Photo courtesy Scott Outboards



MARINAS are fine stop-off points. This layout is typical of the latest. Design is by standard Steel Products Mfg. Co., Milwaukee builders of steel piers and floating docks.

CHARCOAL GRILL priced below $3 is a handy extra to have for cooking chicken, steak, chops, corn or potatoes on beach.

bustling cities to resorts to bays that haven't changed since Indians paddled by in canoes. They're the highways of history and you'll find much of the history preserved along the way. Even on a 200-mile round trip, there's so much to see and do that you couldn't hope to take it all in on one vacation.

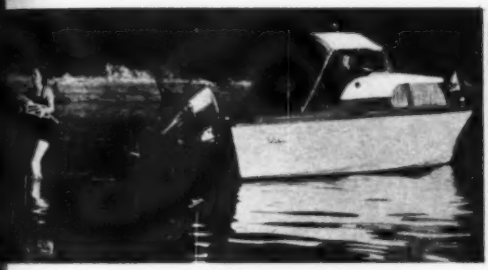
The boat you travel in can be small if you have an adventurous spirit. On our first trip in the 14-footer, the extras aboard were two suitcases, two air mattresses and two sleeping bags. Naturally, we selected relatively sheltered inland waterways for a trip that scaled 1,027 miles on the charts. Our plan was to sleep in the boat when we had to and ashore when we could. As it turned out, we slept in the boat three times in 18 days. Other times we stayed in hotels and tourist cabins or enjoyed the hospitality of boat clubs and wonderful people who invited us to sleep aboard their big cruisers or at their homes.

We weren't equipped for cooking and had practically all our meals at restau-

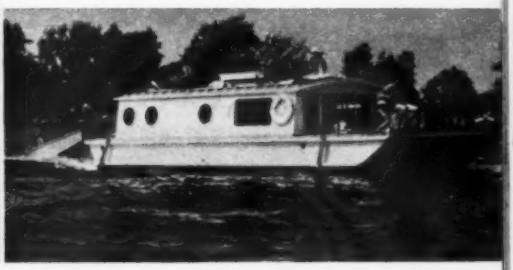
REV. Ernest E. Ryden and wife carried a tent. After a day in town, they're about to leave marina for a public camp ground.

rants and diners. Our laundry was sent out when we stopped two days or more at one place and we found no difficulty in keeping ourselves neat and clean. Something we didn't need was a lot of clothes. Though each of us brought along one dress-up outfit—and wore it in a big city after a pressing—we could have gotten by with the slacks and shirts we wore ashore the rest of the time, even in numerous fine restaurants catering to boating people.

An interesting fact is that the first trip cost us more than any of several we've been on since. When you use the boat primarily as a means of transportation, you end up spending as much as you would by staying at a resort hotel. Costs



OUTBOARD cabin cruiser can be anchored in shallow water, even beached to permit gear to be carried ashore in remote bays.



30-FOOT houseboat cruises 9 mph with a 75-hp Evinrude. Buster Ballard, Virginian living in Montreal, designed and built it.

JUDGE Arthur J. O'Dea, Westwood, N. J., cruised hundreds of miles with children, Susan and Joseph, who enjoyed every day.

can be cut considerably by sleeping in the boat regularly and preparing your own meals, which means taking along extra water jugs, utensils, a two-burner stove and an ice chest. You'll always find showers at marinas where you can tie up overnight at an average rate of ten cents per foot of boat length.

If sleeping in the boat isn't practical, you can carry a small tent as did a couple we met on our last trip. The Reverend Ernest E. Ryden and his wife, of Orange, Mass., trailed their 14-foot boat (build from MI plans of 25 years ago) to the southern end of Lake Champlain and cruised up into Canada, stopping at public camp grounds along the way. They enjoyed it so much that they plan to explore more distant waters in the same way this year.

SKIN DIVING, fishing, swimming or water skiing are right over the side wherever you travel. This 20-footer, by Cruisers, Inc., Oconto, Wis., has a 75-hp Johnson for power.

BOAT can be hauled to distant cruising area. Air rollers on this Dana Hull-Gard trailer adjust to the shape of the hull.

TUNING IN the nightly weather forecast. The radio is a must because knowing what to expect is important to cruising plans.

Photo courtesy Scott Outboards

The cabin cruiser, outboard or inboard, offers complete independence from outside sleeping arrangements and makes restaurant meals an occasional diversion. With two bunks, table, sink, stove, ice box and marine toilet, our 19-footer was real luxury after the open boat. It was a craft in which we could stand and walk a few paces, stretching our legs while underway. We still carried the suitcases, using them for shirts, slacks and other going-ashore clothes, while storage space under the bunks served for boat clothes and other equipment. The sleeping bags were retained, too; it's more convenient to roll and unroll them than it is to make up bunks.

Coastal cruising was sampled in the 19-footer on a trip from New York to Provincetown, Mass. and back. Our weekend boating is always done in coastal waters, so we had no illusions about wind and waves offshore—any more than we had about the wind and waves we experienced on a body of water such as Lake Ontario. We knew our boat and our engine, carried all required safety devices and more, were students of the weather, could run compass courses and had experience beyond small-boat cruising. But to make the point: Offshore cruising in an outboard cruiser or small, planing-type inboard is not only dangerous but frequently unpleasant.

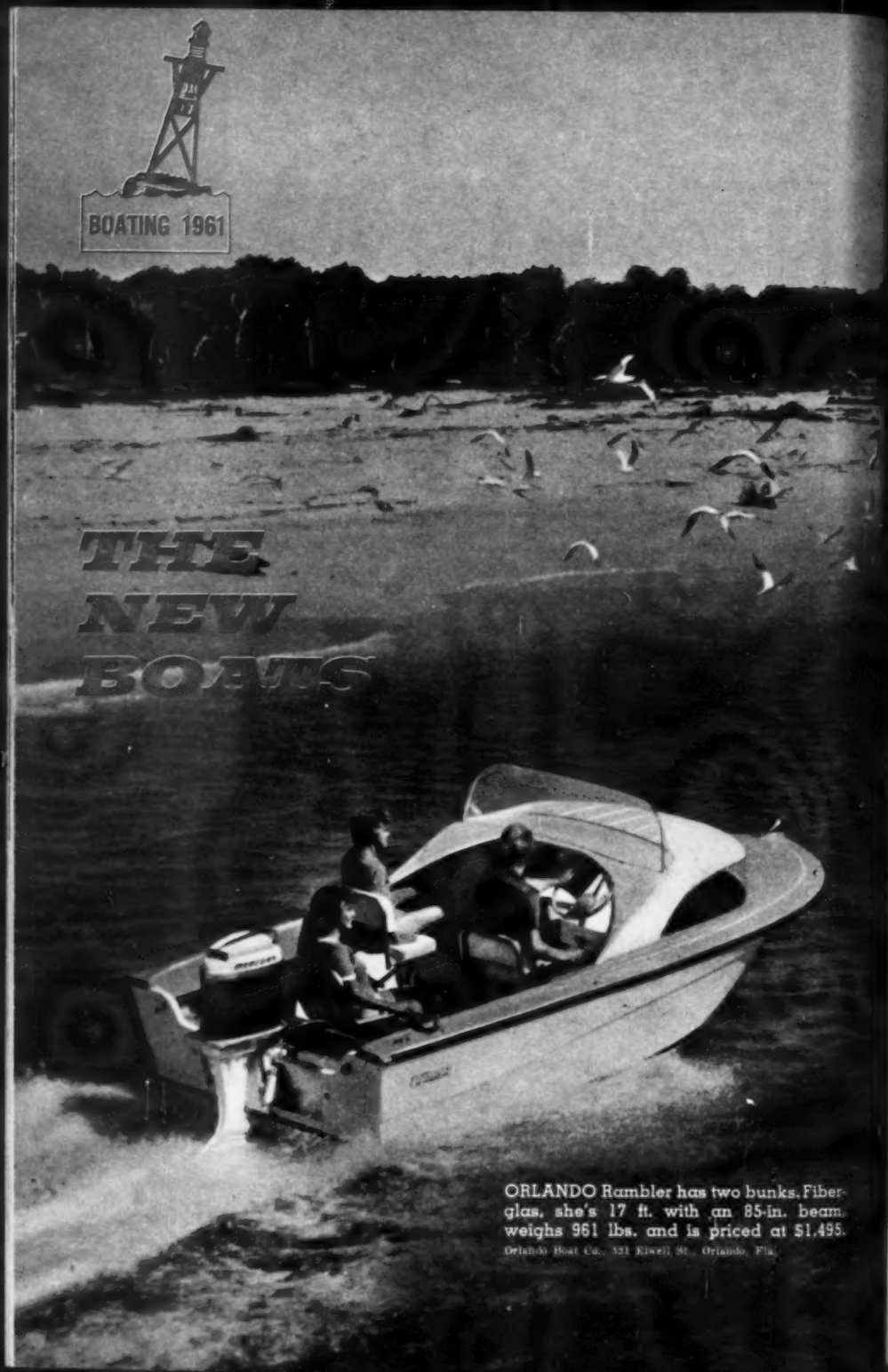
To name a few disadvantages: Even on a relatively good day, you're constantly adjust- [*Continued on page* 148]

Photo by Fred Honig

LOCKS are easy to navigate. You either tighten or slack off lines to the top as the water rises or falls, tie to floating bollards in wall recesses or hold onto ladders.

OUR NEW BOAT, a 24-ft. Pembroke, compact yet roomy, with a lapstrake skiff-type hull for speed, rough water ability.

OUR START in cruising was like this: a pair of sleeping bags, air mattresses and a 16-hp forerunner of the Scott outboard.

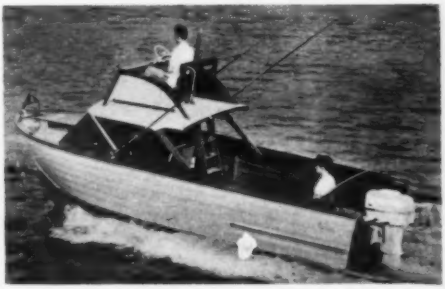


ORLANDO Rambler has two bunks. Fiberglas, she's 17 ft. with an 85-in. beam, weighs 961 lbs. and is priced at $1,495.
Orlando Boat Co., 521 Elwell St., Orlando, Fla.

GLEN L plans for this 14-ft. catamaran include step-by-step photos and full-size patterns, are $20; with frame kit, $120.
Glen L. Marine, 9152 E. Rosecrans, Bellflower, Calif.

SHELL LAKE 17-ft. Fiberglas Sportliner has an 80-in. beam and 38-in. depth amidships, takes up to 90 hp. Price is $1,175.
Shell Lake Boat Co., Shell Lake, Wis.

CARTER-CRAFT 18-footer, with full canvas and bunk cushions, is $1,595. Hull is Expanded Royalite, a tough 5-ply plastic.
Carter Craft Corp., Box 591, Panama City, Fla.



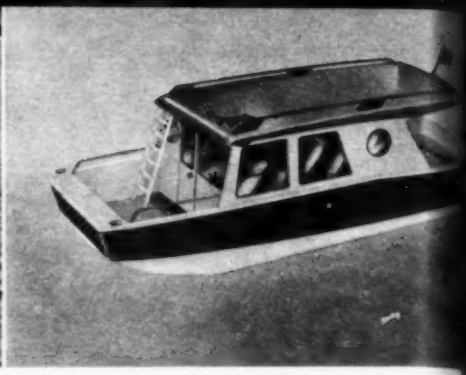
REVEL CRAFT designed Seagull model for blue water fishermen. There's a 6½x15-ft. cockpit in the 22-footer. Cost is $2,495.
Revel Craft Mfg. Co., Box 20, Arnold, Mich.

LONE STAR'S 17-ft. Fiberglas Vacationer has two 6-ft. bunks, transom seats which detach to become tables in cabin. $1,695.
Lone Star Boat Co., Box 1050, Grand Prairie, Tex.

ARISTO-CRAFT Fun Liner has upholstered seats for six forward and large open rear cockpit. The Fiberglas 17-footer is $995.
Atlanta Boat Works, 665 Pylant St., N. E., Atlanta, Ga.

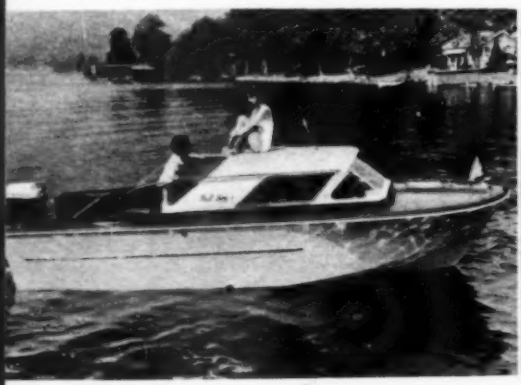
OWENS 25-ft. Family Cruiser sleeps five, has a 70 sq. ft. flush deck cockpit. With a 185-hp V8 Flagship engine, it's $5,470.

Owens Yacht Co., Stansbury Rd., Baltimore 32, Md.



LUGER kit line includes houseboat which is 22 ft., has a 7-ft. 11-in. beam, 6-ft. 4-in. headroom and sleeps six. Kit: $699.

Luger Industries, Inc., 9200 Access Rd., Minneapolis 20, Minn.



BELL BOY 20-footer has a 95½-in. beam; made of Fiberglas, has bunks, galley, toilet room, two 20-gal. gas tanks, costs $3,675.

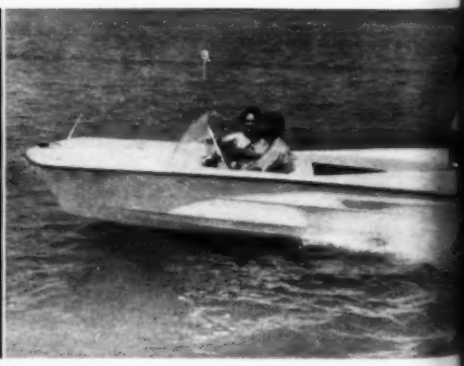
Bell Boy, 601 Cornwall Ave., Bellingham, Wash.

AERO-CRAFT 15-ft. Javelin has a 74-in. beam and a 35-in. depth. Built of Fiberglas, it weighs 500 lbs., sells for $999.

Harwill, Inc., St. Charles, Mich.

FABUGLAS 18-ft. 2-in. Commodore Cruiser has an 87-in. beam. There are two 7½-ft. bunks in the cabin. As shown, it's $1,995.

Fabuglas Co., 312 Jefferson St., Nashville 8, Tenn.



CUSTOM CRAFT 15-ft. Fiberglas Manta Ray is a catamaran with 68-in. beam. Designed for a single-engine installation, it's $995.

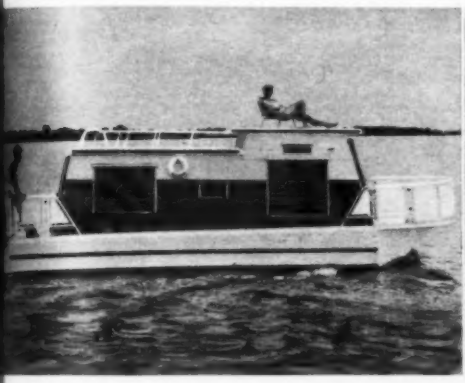
Custom Craft, 1700 Niagara St., Buffalo 7, N. Y.

TAFT MARINE WOODCRAFT 18-ft. cruiser is plywood with one-piece Fiberglas cabin top. Kit to build it as shown costs $580.

Taft Marine Woodcraft, 636 39th Ave. N. E., Minneapolis 21, Minn.

THOMPSON Club Cruisette, 19 ft. long with an 85-in. beam, has hatch in cabin roof. There are two 6½-ft. bunks. About $2,000.

Thompson Boats, Cortland, N. Y.



HOLIDAY houseboat, steel construction, 28 ft. with an 8-ft. 2-in. beam, has galley, dinette, toilet room, sleeps six. It's $4,350.

Holiday Boats, Box 445, Vicksburg, Miss.

TROJAN Sedan Cruiser sleeps four, is 23 ft. with 8-ft. beam, 5-ft. 9-in. headroom in cabin. With 135-hp Interceptor, $5,390.

Trojan Boat Co., Lancaster, Pa.

DUNPHY Explorer made of lapstrake plywood features a raised forward deck. A 16-ft. model with 74-in. beam, costs $725.

Dunphy Boat Corp., Box 738, Oshkosh, Wis.

CHETEK lapstrake plywood Empress, an 18-footer with an 82-in. beam. It has two bunks and a helmsman's seat, costs $1,545.

Chetek Boat Corp., Chetek, Wis.

GLASSPAR Fiberglas Seafair Phaeton has an 85-hp Volvo-Penta Aquamatic installed. It's 17½ ft. with an 84-in. beam. $4,145.

Glasspar, 19101 Newport Ave., Santa Ana, Calif.

TOMAHAWK Fiberglas Guide Special is a 14-footer with a 56-in. beam. She weighs 140 lbs., takes up to 20 hp, costs $325.

Tomahawk Boat Mfg. Corp., East Somo Ave., Tomahawk, Wis.

WHIRLWIND cruiser with 75-hp Gray inboard sleeps three, has an enclosed head, complete galley. The 21-footer is $3,800.

Molded Products, Inc., Cockeysville, Md.

A.N.A. 26-ft. sea skiff sedan is available with engines from 109 to 240 hp, has head, galley, two bunks, starts at $4,790.

Associated Naval Architect, Inc., West Norfolk, Va.

LYMAN 16-footer has a 73-in. beam. The back-to-back forward seating allows more room in the aft cockpit. The price, $995.

Lyman Boat Works, 1699 First St., Sandusky, Ohio

ARKANSAS TRAVELER Angler features fish well under center seat. Aluminum. 13 ft., has a 50-in. beam, weighs 114 lbs. $215.

Traveler Mfg. Co., Box 2501, Little Rock, Ark.

PENN YAN 18-ft. Magellan has an 83-in. beam, a 37-in. depth amidships and weighs 720 lbs. Lapstrake plywood, it is $1,070.

Penn Yan Boats, Penn Yan, N. Y.

GLASSMASTER Seaflier, a 19-ft. boat. Fiberglas hull has an 83-in. beam and 45-in. depth. She weighs 1050 lbs. Price, $1,699.

Glassmaster Plastics Co., 5600 Shakespeare Rd., Columbia, S. C.

CRESTLINER Imperial Del Rio has Fiberglas hull. Length is 17 ft.; beam, 77 in. Price, without 80-hp Mercury, is $1,395.

Crestliner, Inc., Little Falls, Minn.

SKIMMAR Duckboat of plywood, weighs in at 130 lbs. The 11¼-ft. hull has a 7½-ft. cockpit. Colored gray or dead grass, $189.

Conn. Boat Co., Inc., 654 Steamboat Rd., Greenwich, Conn.

DURATECH Sabre, 14 ft. long with 67-in. beam. The Fiberglas hull weighs 544 lbs. Less the 45-hp Mercury motor, it's $795.

Duratech Mfg. Corp., Rt. 202, Peekskill, N. Y.

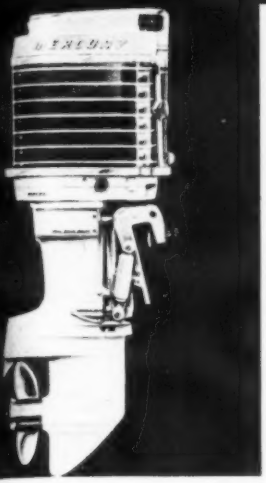
STEEL CRUISER, outboard-powered, has retractable wheels, measures 30 ft. with 8-ft. beam; it sleeps six. Equipped, $4,785.

Steel Cruiser Mfg. Co., Inc., 5830 Second Ave., Des Moines, Iowa

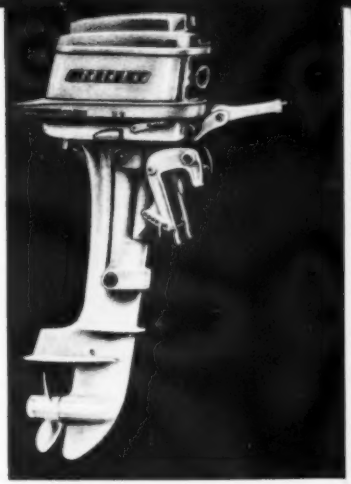
BOATING 1961

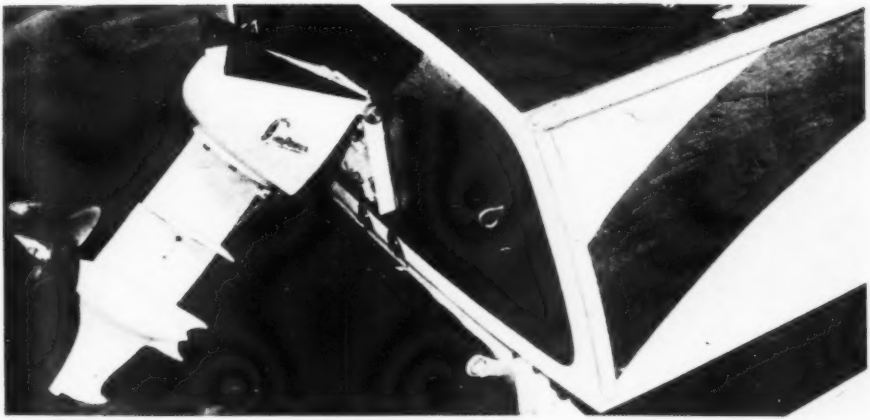
. . . Engines

EVINRUDE eight-model line includes horsepower ratings of 3, 5½, 10, 18, 40 and 75. There are two 40-hp models, one manual and another with electric starting. The 75-hp V-4 comes in a luxury model with a high-output AC generator and transistorized voltage regulator or as a standard 12-v. electric. Curved Fiberglas cowlings further reduce noise this year and fixed-jet carburetion cuts down on fuel costs.

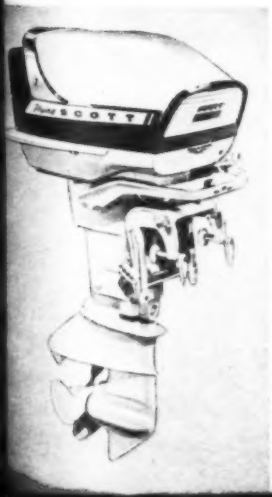


MERCURY six-in-line 80-hp Merc 800 and 70-hp Merc 700 engines are now made with a full gear shift as well as in direct-reversing models. The four-in-lines include a new 50-hp Merc 500, the 45-hp Merc 400 and a new 40-hp Merc 350. The twins include the 22-hp Merc 200, the 9.8-hp Merc 100 and the all new 6-hp Merc 60 Fishing engine. There's a single-lever remote throttle and shift control for every one of them.

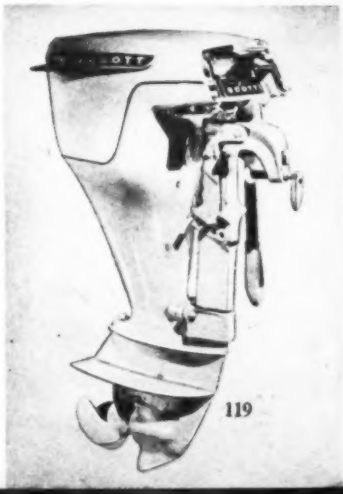




SEAPOWER outdrive unit combines prop steering and tilt advantages of outboard with four-cycle inboard power, is coupled through the transom to engines from 36 to 150 hp.



SCOTT leads off with the three-in-line Flying Scott (75.2 hp). The custom model of this engine incorporates a new high-speed lower unit. Twins are: the Royal Scott (43.7 hp) electric or manual; the deluxe Royal Scott Custom with tachometer; the Sport Scott (27.7 hp) with manual or electric starter; a manual-start Fleet Scott (14.1 hp); and the Fishing Scott (7.5 hp). Last is the one-cylinder Scotty (3.6 hp).

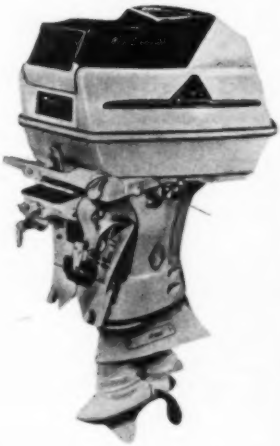


. . . Engines

VOLVO-PENTA Aquamatic power package consists of outboard drive and four-cycle, four-cylinder, 96.6 cu. in. engine with a rating of 85 hp at 4,500 rpm. Engine and outboard drive are transom-mounted, fit outboard-type boats from 16 to 30 ft. Price is $1,395.

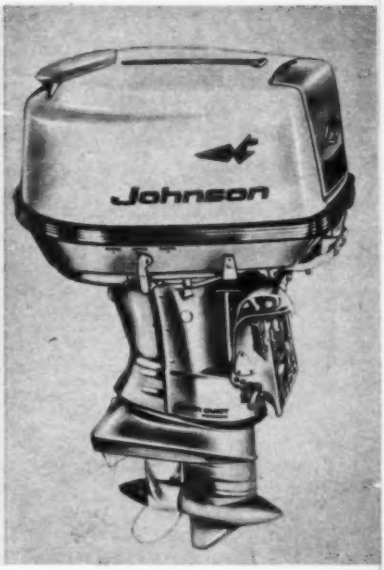
CARY JET has no prop, shoots a stream of water for motive power. The 5.4 cu. in. engine is air cooled, swivels 360°, weighs 36 lbs., has 3 moving parts, costs $199.75.

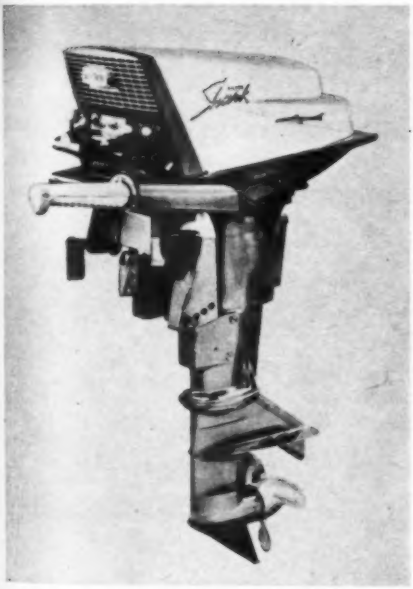
Cary Outboard Motors, 404 W. Jericho Turnpike, Huntington, N. Y.



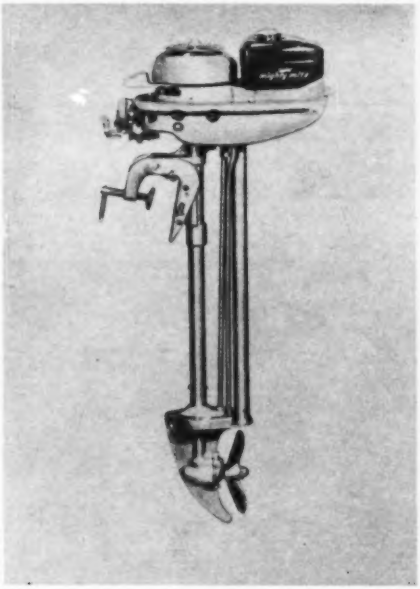
GALE Sovereign and Buccaneer motors include a 60-hp electric V-4, twin-cylinder electric or manual 40's and 25's, a manual 15 and a 5, and the single-cylinder 3-hp.

JOHNSON offers two 75-hp V-4's, one with an alternator generator and transistorized voltage regulator, the other with the 12-v. electric starting and optional generator. Others in the line include the electric-starting and manual 40-hp twins, the 18-, 10- and 5½-hp manual twins and a 3-hp single-cylinder model. The new alternator generator charges 5 amps at idling speed and over 20 amps at top speed. With the boat at anchor and the engine running fast in neutral, up to 10 amps may be charged, enough to operate many electrical conveniences or a radiotelephone.





WEST BEND motors range from a new four-in-line 80-hp Tiger Shark down to a one-cylinder, 2-hp Shrimp, with 40-, 25-, 18-, 12- and 7½-hp models filling out the line.

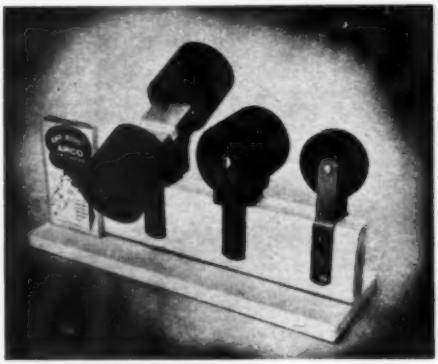


NEPTUNE Mighty Mite is rated at 1.7 hp at 4,000 rpm. This single-cylinder, 2.87 cu. in., water-cooled engine weighs only 17 lbs. and stands 33 in. high. It's $80. Muncie Gear Works, Inc., Box 1192, Muncie, Ind.

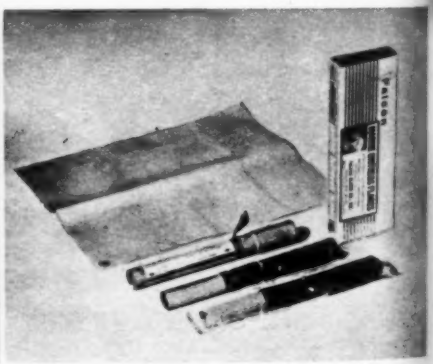
BOATING 1961

. . . Accessories

WHING-DINGHY is 9 ft. with a 44-in. beam and a 13-in. depth. Of molded polyethylene plastic, it weighs only 70 lbs., rows well and takes small motors. Price is under $145.
Space Products, Inc., Waconia, Minn.

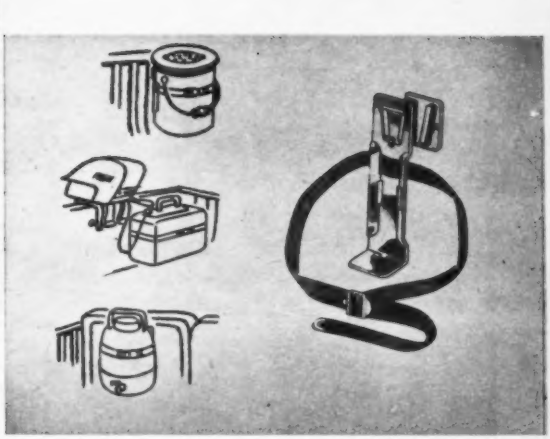


RUBBER ROLLERS are mounted on parallel 2x4 or 2x6 lumber to make haul-out ramp which easily glides boats up to 2,000 lb.
Arco Mfg. Co., Grand Forks, N. D.

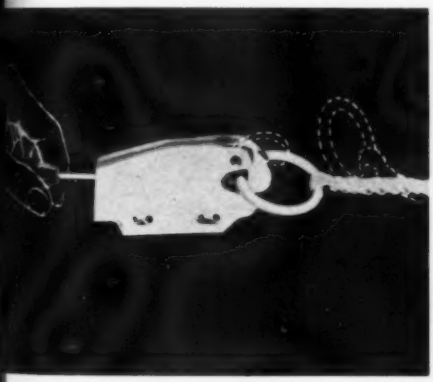


MARINE DISTRESS KIT contains 2 five-minute red flares, a yellow smoke signal, dye sea-marker and flag, packed to float.
Falcon Alarm Co., Inc., Summit, N. J.

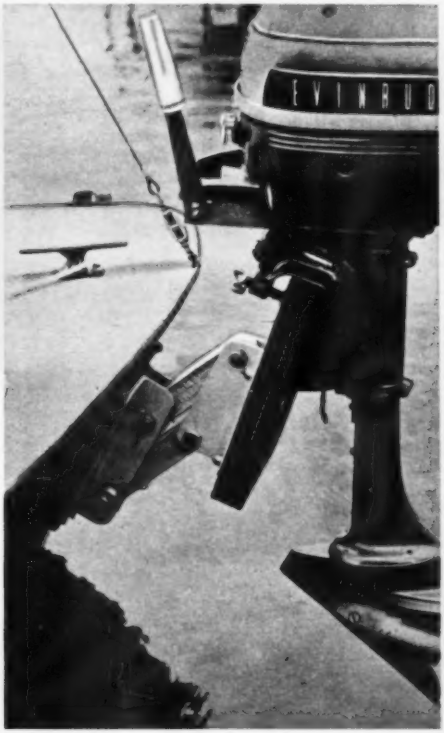
INSULATED JUG of brass and plastic not affected by salt water, floats when full, keeps food or drink hot or cold. $9.98.
Coleman Co., Inc., Wichita, Kan.



THINGAMAJUG is easily mounted container holder. Cradle on strap allows container to be simply lifted in and out. $2.95.
Carlson Products, Box 141, Cincinnati, Ohio



LINE RELEASE for water skiing, mooring, eliminates knots; release and attachment are instantaneous; with nylon ring $6.95.
N. A. Taylor Co., Inc., Gloversville, N. Y.



ACU-RITE CLINOMETER indicates degree of list, makes for smoother, faster sailing, aids correct loading and trimming. $9.98.
John L. Chaney Instrument Co., Inc., Lake Geneva, Wis.

SAILBOAT BRACKET is specially designed so that motor may be carried by sailboat without need for transom modifications.
McElroy Mfg. Co., 5619 E. Independence St., Tulsa 15, Okla.

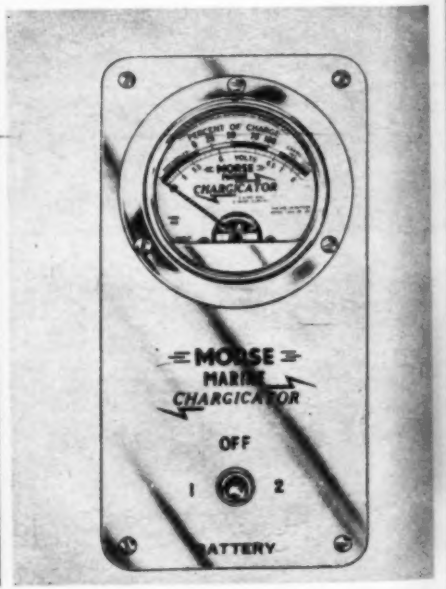
. . . Accessories

BOAT COVERS of Fiberglas cloth resist rot, mildew; punctures will not tear, rip. Priced from $12.99 to $19.99 for boats up to 18 ft.

Triangle Sales Corp., 286 5th Ave., New York 1, N. Y.

SHIPMATE clear coating gives chrome, other metal surfaces lasting protection against salt water—16 oz. spray can $2.95.

Permco, Inc., 238 S. Atlantic Blvd., Los Angeles, Calif.



CHARGICATOR for instant battery reading costs $29.50 for meter—switch panel kits for multiple batteries from $12.

Morse Instrument Co., Hudson, Ohio

Remember how great cigarettes used to taste?

LUCKIES STILL DO

L.S./M.F.T.—LUCKY STRIKE MEANS FINE TOBACCO

CHANGE TO LUCKIES

and get some taste for a change!

©A. T. Co.

Product of The American Tobacco Company — "Tobacco is our middle name"

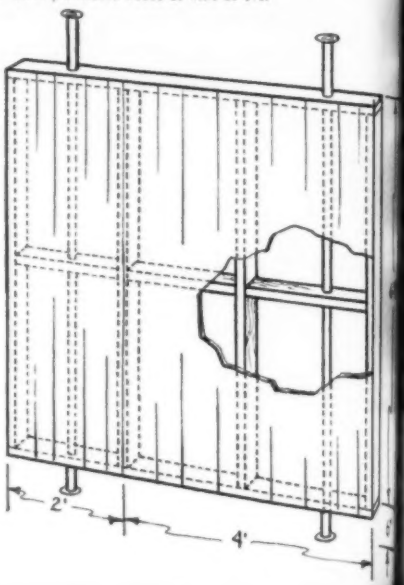
Weldwood prefinished walnut V-Plank® (above) costs only about $25 for a 4′ x 8′ panel. Other prefinished woods as little as $12.

A divider wall of Weldwood paneling multiplies your living space

Let *real wood* paneling's natural beauty add new warmth and livability to your home. Three 4′ x 8′ Weldwood® prefinished panels do the trick (one and one-half panels trimmed to 6½′ to a side).

First, build frame of 2″ x 3″ studs. Use one panel full 4′ width; cut other to 2′ so joint falls on stud. Then drill holes at top and bottom of frame for 1⅜″ closet poles. Next, fasten panels to frame with Weldwood Contact Cement, or nail in V-grooves. Finally, attach unit to floor and ceiling with standard metal collars. The 1½′ pieces left over can be used to face the cabinets.

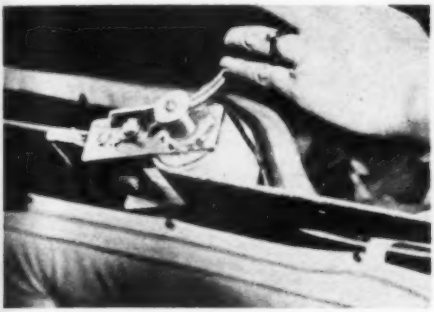
For a copy of the new idea booklet, "Weldwood Prefinished Paneling For Fine Interiors," send 10¢ to: United States Plywood, Dept. MI 2-61, 55 W. 44th Street, New York 36, N. Y.



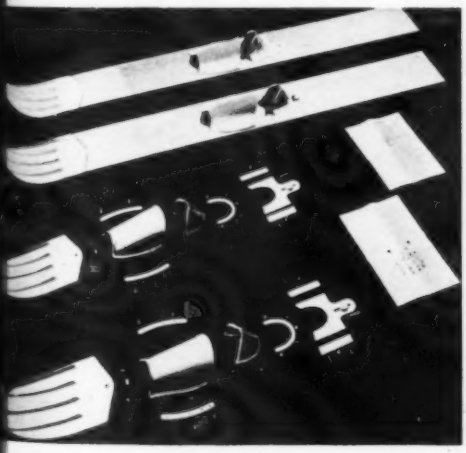
WELDWOOD Real Wood Paneling

TAPERED GAS TANKS designed to fit the contours of a boat are easily housed under the side decks or below slanted motor well.
Tempo Products Co., 2062 E. 70th St., Cleveland 3, Ohio

READY-TO-USE ADHESIVE, no mixing needed, bonds vinyl fabrics, wood, aluminum, steel, rubber, Fiberglas etc., 1 pint costs $2.85.
Stay-Tite Products Co., Inc., Cleveland 4, Ohio



KIMSTRAP TENSION CONNECTOR has spring-loaded ratchet to take the hard work out of getting trailer tie-down straps taut.
Boston Clip and Tag Co., 48-14 Grove St., Somerville 44, Mass.



WATER-SKI KIT includes tips, bindings and instructions which can convert your own boards into a pair of skis for $9.95.
Drake Products, Greenville, Mich.

AQUA-PROBE is transistorized depth and fish finder, operates from batteries, is accurate down to depth of 100 ft., $99.50.
Columbian Hydrosonics, Inc., Freeport, L. I., N. Y.

BOATING 1961

Build Turnabout

This small boat can be easily built from a kit in 21 days during spare time after work.

By George Gilbert

IF our family didn't include a 13-year-old boy and his eight-year-old sister, we might have bought a boat like any of the fast-growing number of water-happy families in our suburban Long Island community. But a boat to us somehow meant a sail overhead and a tiller in hand, not another steering wheel on a watery highway. Once mentally committed to a sailboat, big enough for four and yet suitable for our absolutely landlubber skill level, we found out that this meant *money*.

We hurriedly changed our course away from ready-made boats in the direction of kits. Just as quickly we found that our problems as landlubbers had only begun. We sent off self-addressed envelopes, dimes taped to bits of cardboard, quarters sealed in

SEA HORSE, author's cat boat made from pre-shaped plywood kit for $270 is ideal for the novice.

BOAT BUILDERS examine center notch of pre-built frame which takes inner keel.

INNER KEEL is joined to three frames, transom, through pre-drilled screw holes.

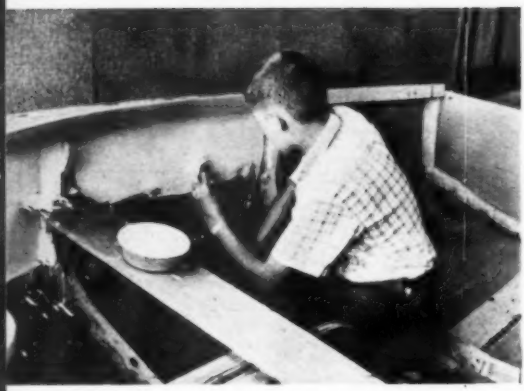
CHINES AND GUNWALES have been fastened. After gluing bottom sheet it is secured.

RUB STRIPS on bottom are fastened from inside, after screwing down side sheets.

tiny envelopes and soon were plowing through endless waves of return-mail paper on the playroom floor. We returned from a local boat show loaded with additional *loa's* (which, we finally learned, meant length overall), *beams* (the width of the craft) and *drafts* (depth of boat in water); but in spite of the large assortment of kits to choose from, finding just what we wanted was not easy. One had a cockpit only for two, or, when you noted that the kit did not include sails, hardware, etc., the cost was too high. Yet another was obviously a long winter project to build, while another was too small.

We discovered what was to become our pride-and-joy, 2,000 miles from the ocean, in pre-dinner small talk at a business convention. The top photographer with one of America's leading picture magazines, listening to our talks of frustration, gave us the lead we had been looking for when he said, "I take my four kids sailing in a Turnabout we built ourselves in a month." A few days later, we had received information about the kit and in another ten days a long, flat box lay on the garage floor, nestled against an 18-foot spar sheathed protectively in a fitted coat of waste wood. On a Saturday morning, we broke the steel straps of the corrugated shipping case, lifted out fifty or sixty odd-shaped slabs, planks, slats and strips and we were only twenty-one days from the water!

First day. Saturday, five hours. The night before we had pored over the mimeographed plans and construction drawings and knew in advance what our first hours would be like. All wood parts were numbered and no building jig was required. Pre-cut and assembled frames were to be screwed to a pre-shaped

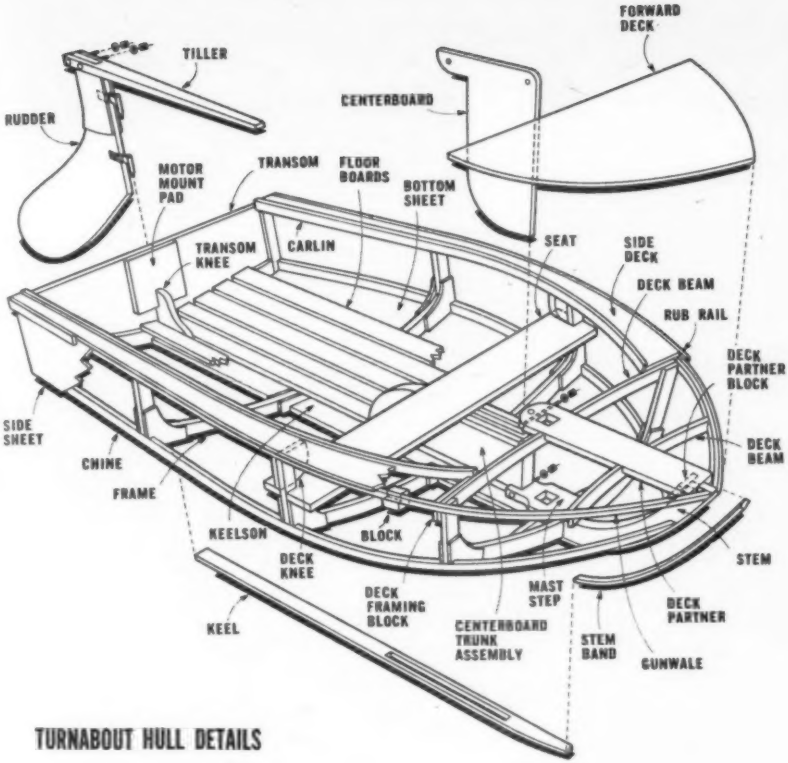


PRIMER COAT has been prepared for by coat of sealing, much sanding, and calking.

stern and keel. This was a matter of sinking large screws through pre-drilled holes into oak frames. In a matter of a half-hour, the skeleton of our boat lay "turtle" on the front lawn. Before we quit for the day, we had stretched oak strips from front to back—oops! . . . from stem to stern—and our gunwales and chines were now in place. Possibly the most amazing part of this construction to our neighbors as well as to ourselves was the ease with which a 12-foot oak strip can be tortured into a curve, screwed down and fitted to within a sixteenth of an inch.

Second day. Sunday, three and a half hours. Now we were learning what building a boat from a kit is really all about—it's gluing and screwing. Marine glue, it was amazing to learn, is a brown sticky molasses that is smeared on cold. We expected to be heating woodworker's glue. But, finding the glue in a can and so easy to use was another of the many work-saving surprises in this age of kits. The task for the day was the gluing and screwing down of one half of the bottom of our craft, a ten-foot sheet of pre-shaped plywood. When marine plywood joins oak it requires screws every two inches, along every edge of every sheet. It was here that we learned that putting in screws really comprises four separate processes: marking, drilling, countersinking and finally screw driving. We wound up with a collection of blistered palms. Next morning, Monday, we were the first customers at the hardware store. Our purchase, an automatic screwdriver attachment for our quarter-inch drill. It proved itself worth every cent of the $7 investment.

ROOMINESS of Turnabout can be seen in photo of trial run using motor only.



TURNABOUT HULL DETAILS

Four more days. Monday, Tuesday, Wednesday, and Thursday, ten evening hours. By the first Sunday evening, we had moved the framework into the garage, with the numbered wood parts stacked along one wall and with our basic tools neatly at hand. During the after-work evening sessions, the Sea Horse (a name we chose two weeks after starting the project) really took form. All sheets of plywood were uneventfully joined to the keel, chines and gunwales.

Saturday and Sunday, five hours. Saturday morning, when we opened the garage door, a ten-foot Turnabout emerged. To the awed children, all that was needed was painting; to the awed neighbors, we needed only more life insurance; to our own awed selves, all we needed was to complete the long list of steps carefully outlined on six pages of the production script. The Sea Horse did now resemble a boat, but we were only two pages into the eight page production schedule. During this weekend, the centerboard assembly came together and was set in a slot in the keel. The seat-like thwart steadied it between the frames and now all the visiting children had to take turns sitting in the boat. In our enthusiasm, we could already begin to smell sea air!

Eleventh day. By the middle of the second week, the mast-step and deck supports, all pre-cut and pre-drilled ready for installation, were locked into place with long screws. With the skeleton of this framework waiting for the forward and side decks, we put our borrowed saber saw to work on the excess plywood over- [*Continued on page* 137]

Photography Today

• FUTURAMIC STROBONAR

• KODAK RETINA AUTOMATIC III

THE advent of miniaturization has brought about, among other fine things, an electronic flash unit combining real compactness with ease of operation. The self-contained, Heiland-Honeywell Strobonar is a two-transistor electronic gun which incorporates all its components in its handle and small lamphead.

The gun is powered by three size D batteries. It also features an AC switch for use with household current and a flashing "readylight" to show when the flashgun is ready for firing.

A large built-in exposure dial indicates

EASTMAN'S new Retina Automatic III 35mm camera with Strobonar electronic flash

III 35mm
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the proper lens opening required for a given lamp-to-subject distance. Color temperature approximates noon sunlight which means color film may be exposed without the need of correcting filters.

To test its output we exposed some Tri-X roll film at guide number 160. This yielded a fully exposed negative. A comparison shot with a No. 5 flashbulb, which is generally used as a norm in such tests, indicated that the No. 5 bulb has a brighter light output of about two stops.

Blurred pictures due to camera or subject movement are almost impossible with this outfit which delivers a flash of 1/1,500th of a second. The pictures of the bicyclist prove this quite effectively. [*Continued on page* 155]

AN EXPOSURE of 1/400th of a second was not fast enough to stop boy on bicycle.

NOW THE ACTION is "frozen" with the 1/1,500th flash duration of Strobonar gun.

THIS SHOT was exposed at f-16; Strobonar light ten ft. from subject; Tri-X roll film.

THE SAME PICTURE taken with a No. 5 bulb required a smaller lens opening of f-32.

HEALTHY, comfortable living is assured with a zoned home heating system operated automatically by two or more thermostats.

TWO-TEMPERATURE HEATING SYSTEM

By C. W. Nessell*

A PROPERLY operating home heating system should keep temperature variations from room to room to within three degrees (F) at all times. Some houses, to be evenly and comfortably heated, require a heating system controlled by more than one thermostat. In other cases an existing system may be "tuned up"—that is, readjusted—to deliver a more even circulation and distribution of heat.

Bear in mind that a thermostat measures the air temperature only of the room it is in. It "assumes" the other room air temperatures are about the same, which they probably are *if* there is good air circulation between rooms. Unfortunately this is not always the case. Some rooms lose heat faster than others and hence require additional heat more frequently. The installation of an additional thermostat in these rooms will bring them "back in line" and help equalize the temperature throughout the house.

First it is necessary to determine whether to correct your heat distribution problem by (1) adjusting the heating system; or (2) installing additional thermostats. To help you determine the needs of your own system, perform the following steps:

(1) If you have a forced warm-air furnace, clean or replace the filters.

*Heating Engineer, Minneapolis-Honeywell Regulator Co.

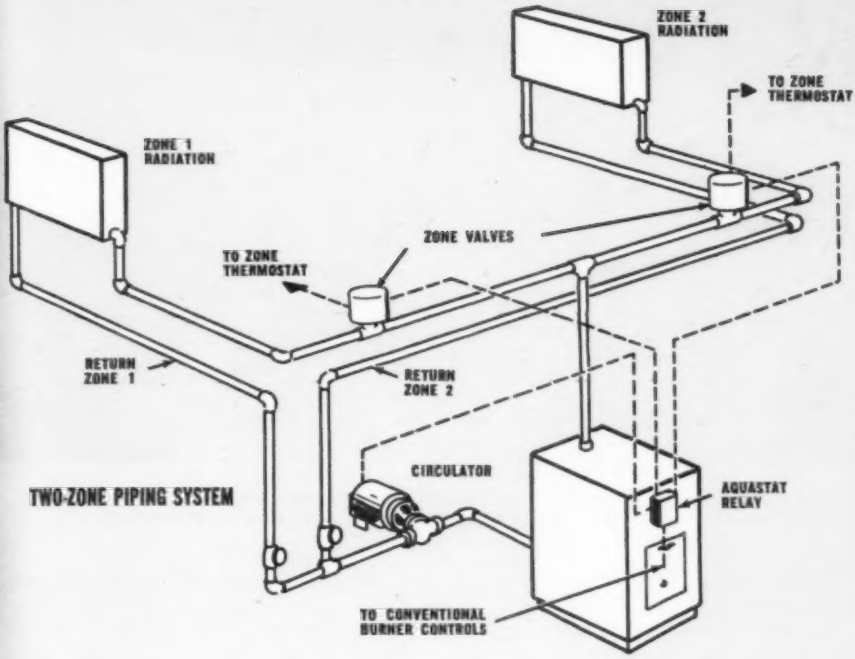


DIAGRAM of a two-zone forced circulation (hot-water) heating system. Note zone control valves installed in the hot-water line serving each zone. Each valve is operated by its own thermostat.

(2) Open the vents in each of the warm-air registers, then move away any furniture standing in front of either a warm-air or return-air register so that air flow is unimpeded.

(3) Purge a hot-water heating system of all air by opening the vent valve on each radiator.

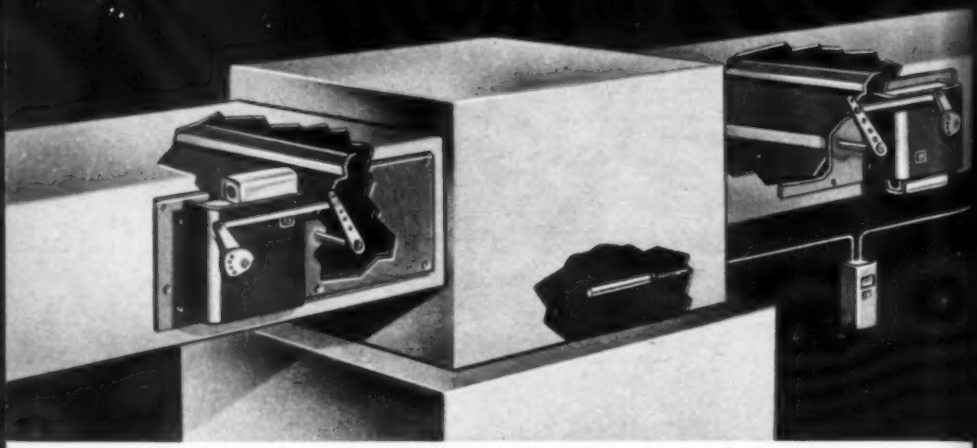
At this point call in a professional heating man. Continuing your preparatory steps, he will:

(4) Check the furnace or boiler and the automatic burner to see that they are operating safely and efficiently.

(5) Calculate the amount of heat your house needs during the coldest weather and adjust the fuel-burning rate of the automatic burner accordingly.

(6) Regulate—in the case of a forced warm-air heating system—the quantity

ZONE-CONTROL VALVES on hot-water system. Each pipe represents a heating zone.



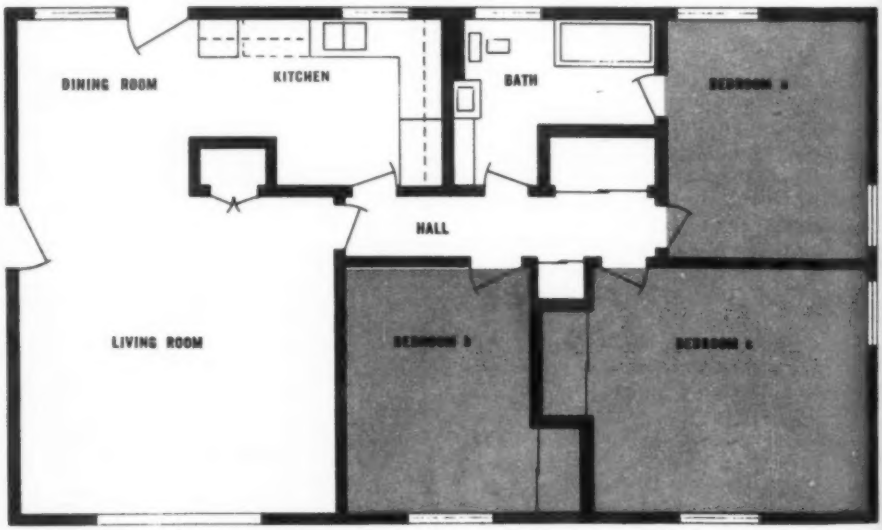
TWO-ZONE forced warm-air system has separate damper and modulating damper actuator for each zone, each with its own thermostat.

and temperature of air pushed through the furnace by the blower.

(7) Adjust the settings on the furnace controls so the blower will start up when the temperature of the air leaving the furnace reaches 100° to 110° and stop when it drops to about 80°.

(8) Check that the water temperature and circulator controls (of a forced circulation hot-water system) are adjusted to the water temperature for which the system was designed.

(9) Check the thermostat and adjust the setting [*Continued on page* 152]



TYPICAL TWO-ZONE HOME with living area forming one zone and sleeping area another. Bathroom is grouped with the living zone.

Build Turnabout

[*Continued from page* 131]

hanging all around. In only minutes, the power saw had ripped away the excess plywood. Some work with a rasp and then a hand plane brought the edge flush with the gunwales. The decks locked neatly over the newly cleaned edge and were then also trimmed flush. An oak rub rail covered the place where the plywood edges met.

By the fifteenth day, the second Saturday, its construction finished, the boat sat out on the lawn in unpainted, pristine splendor. We pretended to busy ourselves slightly tapering the 18-foot mast while keeping one eye open for the older kids who now crowded around the family's new asset. We especially beamed as car after car slowed down while passing our house, proving that the children had carried home word of our activity. The down-the-street neighbors learned from their children what the up-the-street neighbors had found out first-hand from the scream of the electric saw, the whine of the drill, the pounding of hammers and the rasping of files.

The third Sunday was one for sandpapering and calking. Rough spots on edges and ends were softened or smoothed. Holes from well meant but misguided screw holes were filled with the mariner's version of putty, a thick, gummy paste that a spatula forces into seams, holes, cracks and crevices to keep out the sea. Helping ourselves from a one-pound can of calking we liberally applied it to any point that even began to look like a water entry. Anyone who has ever painted an unfinished table or bookcase can paint a boat. The marine plywood needs sealing and so son, daughter, friends and neighbors helped to splash on two pints of Firzite. By the sixteenth day, the primer coat of paint was just as enthusiastically sprinkled, spattered and spread, over bare wood, top, sides and insides. The bottom was left until the very end of the painting period when it could be given both coats while the boat rested upside-down. Mast, tiller and boom were simply varnished in successive coats.

There are many kinds of marine paint but for the small boat owner there are primarily two major types; one for above water, one for below. We used the kit's top-and-deck paint for the bulk of the boat, applying it in two coats with 24-hours in between. The bottom gets its own paint specially made to resist marine growth.

The last of the twenty-one days was spent in mounting brass hardware. This was a comical adventure as we learned to distinguish beween blocks, cleats, fairleads, goosenecks, and tracks. These, after all is said and done, turned out to be pulleys, rope guides, tie points and other seaworthy installations that simplify life aboard a sailing vessel. Now that we are real "salty," we would not dream of calling a block a pulley or the *main halyard* a rope up the mast. But we'll admit, on the evening of the nineteenth day, we invited an experienced yatchsman over to guide the final mountings. He found that we had one fitting upside down and another in the wrong place; but five minutes with the screwdriver, and we were well on the way to earning his respect as "able-bodied" seamen. The problem of identifying the marine hardware led us to consult the dictionary. In Mr. Webster's big book, we found out what the *gudgeon* and *pintle* could do for the *tiller*. They are the pin and eye that lock *rudder* to *transom*.

Hardware on the mast either relates to the sail, for example, the track which secures the sail so that it runs up and down the mast; or to the main halyard that one pulls to raise or drop the sail; or to the stays that steady the mast against the force of the wind. On the boat shell, hardware guides in anchor lines, guides the main sheet (this is the key rope when you're at last underway), secures stays, halyards and the others.

Our maiden voyage under sail is the subject of a hilarious 8mm film that is mainly funny because the motor that was to safeguard us against becalming itself was becalmed! We jerked the starter cord right off when accidentally trying to start it in gear. Our first efforts at *tacking* and *reaching* (sailing into and with the wind), finally found us at the mercy of the ebb tide. We finally reached home port, igno-

[*Continued on page* 150]

CAR CARE

YOUR NEW BUICK SPECIAL

By Frederick C. Russell

Member, Society of Automotive Engineers

THE brand new Buick Compact—the Special—is quite special in a number of ways. Typical are its aluminum block engine and the double propeller shaft.

One of the first things you will note when getting behind the wheel is the use of a red warning light instead of a conventional heat gauge. This is located just below the left turn signal. As soon as the ignition key is turned to the Start position the temperature warning light will come on, but it should go out the instant the engine starts.

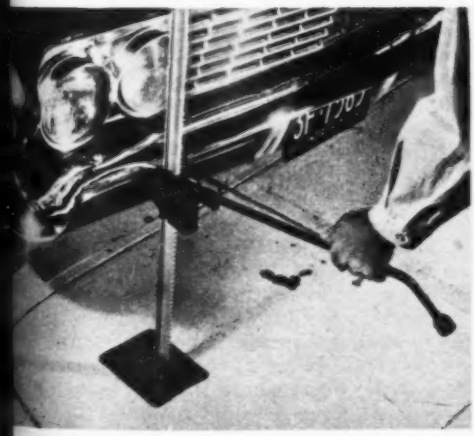
A word of explanation about the gas gauge. This reads accurately only when the ignition switch is in the On position. Don't be alarmed if the pointer comes to rest at any position between empty and full with ignition at Off.

ONLY OILS marked for service DC or MS are recommended for use in Buick Special.

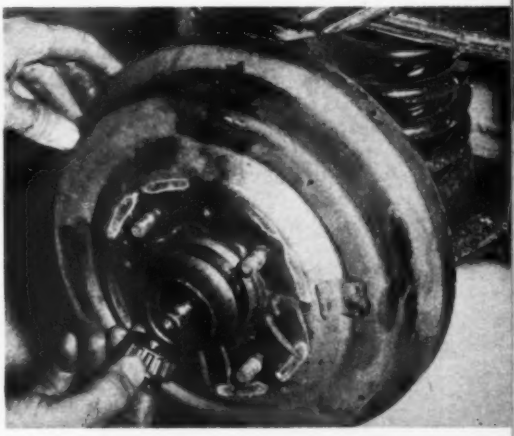
FUEL GAUGE is accurate only when ignition is on, otherwise may point anywhere.

RED "high temperature" light should go on with ignition, off when engine starts.

SLIGHT RATTLE with manual steering is normal on turns; lash mustn't be reduced.



JACK is placed in line with inner headlight at front or with a taillight at the rear.



LOOSE front wheel bearings will cause car to pull to one side during braking.

DIP STICK for oil level check in power steering pump is a part of reservoir cap.

LOW ground clearance of the 1961 Buick Special must be considered when driving.

Driving a Special, with the new Buick automatic transmission, you are immediately impressed with the fact that there is a wide space on the selector guide plate between Park and Neutral which makes for easier control. For safety's sake you need to raise the lever slightly before it will go into P or R.

Buick owners accustomed to the smoothness of the former Dynaflow full torque drive may be puzzled to note a slight shift at low speed or at higher speed in a fast start. This is due to the switch to a Dual Flow automatic—actually a double path torque flow type of drive with a converter. It's an arrangement whereby engine torque in direct drive follows two parallel paths—one is hydraulic, the other mechanical. This is divided 36.6 percent mechanically and 63.4 percent through the hydraulic path. An advantage of the system is that there is provision for maximum pick-up when flooring the accelerator pedal.

Six quarts of Type A automatic transmission oil are needed. Draining and refilling are recommended at 25,000-mile intervals. Torque multiplication is 3.6 in Low and Drive before the converter clutch engagement. In Drive range it is 1.5 after the converter clutch engages. The action of the converter clutch is controlled by the governor as well as the throttle opening, very much as shift points are controlled in other automatic transmissions.

With this Buick drive the engine cannot be started by pushing or pulling. So take care that the battery is kept in prime condition. If it fails, a booster battery will be needed to crank the engine. Also unless the propeller shaft is disconnected at the rear companion flange the car must not be towed with the rear wheels on the road. The propeller shaft must also be supported otherwise it will damage the center universal joint.

There are three joints in the drive line of the Special operating through two propeller shafts, the center universal being of the constant velocity type. Just ahead of the center joint there is a center bearing. Complicated as it seems, the entire assembly requires little service because all three joints are lubricated for life. If a joint wears or becomes noisy there's a service kit which should be used. It consists of a spider complete with bearing assemblies and snap rings. One other feature of the driveline should be noted, however. This is the slip joint. Its spline requires lubrication with multi-purpose grease, EP No. 1 grade, every 10,000 miles. A grease fitting is installed after removing the plug. Be sure the plug is replaced after greasing.

For Special with synchromesh transmission, the clutch is the conventional disk type operated through a suspended pedal. It is easier to operate because of an over-center spring. If pedal pressure is too great, the pedal rod may be binding at the point where it goes through the cowl. Keep all linkage pins lubricated with engine oil and the equalizer greased with chassis lube.

Just a word or two about the Special's

V-8 150 hp engine construction before considering its special needs. Cast aluminum is used for the cylinder block and crankcase with iron cylinder inserts cast in place. *These inserts are not replaceable.* Cylinder heads are of cast aluminum with iron valve seats and valve stem guides. Valve seats are not replaceable but the guides, which are a press fit, can be taken out and replaced.

The engine is fitted with hydraulic valve lifters so the matter of proper engine oil selection is important. An AC full-flow oil filter is externally mounted to the oil filler cover nipple located on the right side of the engine below the generator. Should the filter become clogged its by-pass valve will open. Buick advises changing the filter at the first thousand miles and thereafter every 4,000 miles, but warns of more frequent changes when driving in dusty country.

Incidentally, the Special's hood fastener mechanism will operate more easily if you put a light coating of Lubriplate on the latch lever and the pilot. Every 5,000 miles clean and re-oil the crankcase ventilator filler cap.

Buicks designed for sale in California are equipped with a positive crankcase ventilating system which has a valve that should be taken apart and cleaned every 5,000 miles. In this arrangement, crankcase vapors are sucked directly into the intake manifold and are burned in the cylinders. This helps to check smog by preventing the exhausting of crankcase vapors directly into the air, but the plan is no aid to engine efficiency. I tried this idea years ago and found that it may adversely affect the mixture at idling and slow car speeds.

A 15-pound pressure cap on the Special's radiator means that the boiling point of the coolant is raised 38°. Many motorists forget that in addition to the blowoff valve a pressure cap must also have a vacuum valve to relieve the vacuum which is created when the system cools off. Speaking of pressure, remember that a newly broken-in Special engine may have a compression pressure higher than 160 pounds. Variations in pressure be- [*Continued on page* 155]

SERVICE TIPS

from Detroit

For 1959-60 Studebaker models, the installation of rubber insulator (Part No. 526249) between the coils of the front spring will eliminate noise caused by coil-to-coil contact under load.

* * *

On early production 1961 Plymouth, De Soto and Valiant cars, it is important to inspect the brake hose to frame bracket retaining clips to make sure they are properly secured on both front and rear brake hoses.

* * *

Noise which appears to originate from one or more rear shock absorbers on 1961 Chrysler models may be due to a loose upper rear shock absorber mounting stud. Be sure studs are properly seated and tight.

* * *

The torque tightening specifications for the Valiant rear spring to axle housing U bolts has been reduced from 60 ft. lbs. to 50 ft. lbs.

* * *

A new oil pump relief valve spring and damper assembly (Part No. 2202845) eliminates possible occurence of a buzzing, growling or grinding noise from 1959 and 1960 Dodge models with 361 or 383 cu. in. engines.

* * *

The fuse for the complete heater system and back-up lamp, located in the accessory junction block of the 1960 Corvair, was changed early in production from 15 to 20 amps. All heater installations should be equipped with the 20-amp fuse.

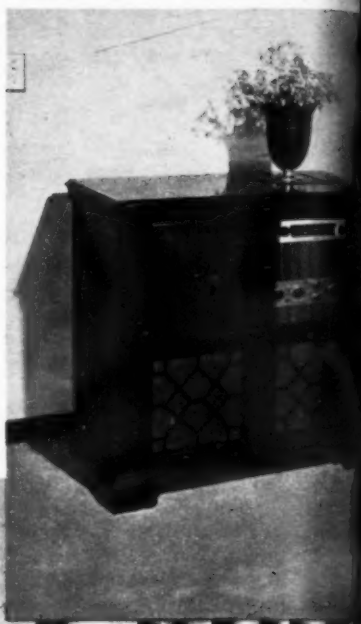
A special distributor cam lubricant (Part No. 1473595) is available in tube form through MoPar outlets. This lubricant is recommended for servicing the disributors in all Chrysler and Imperial models.

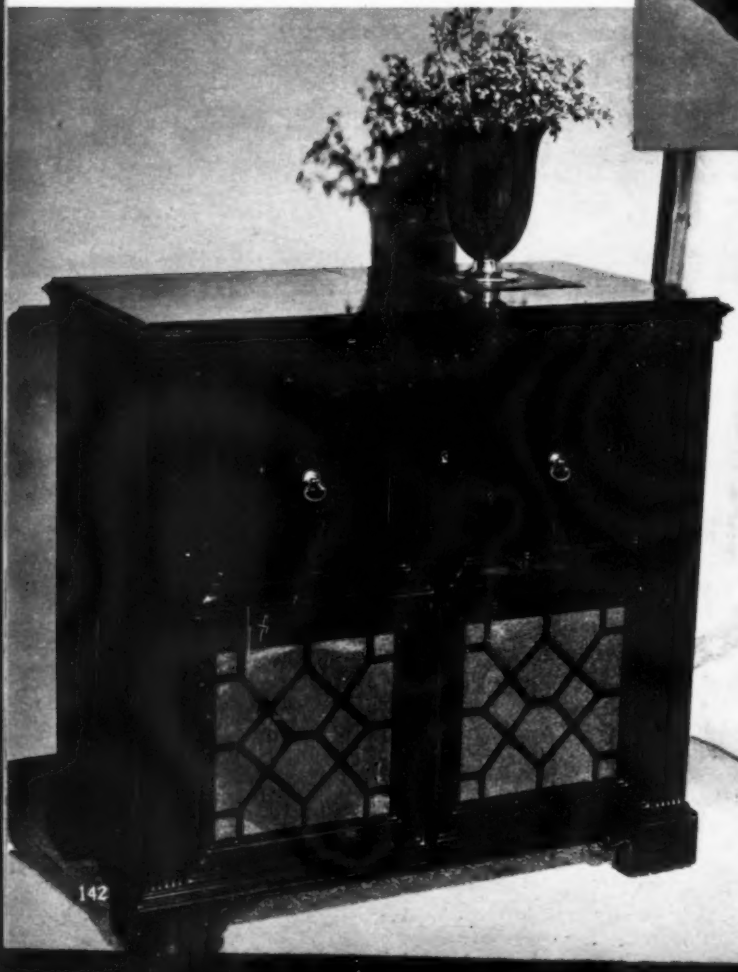
MODERNIZE

YOUR OLD RADIO

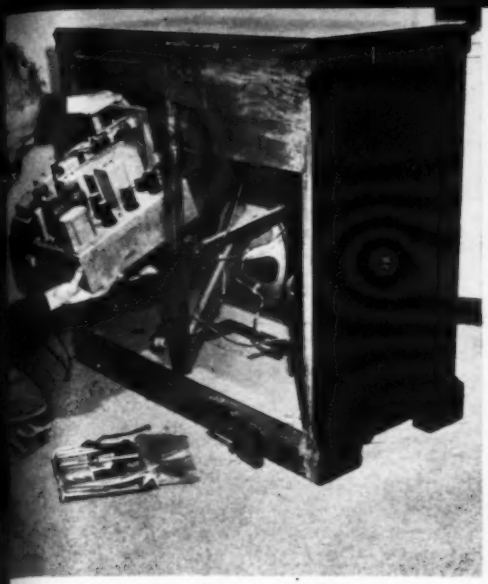
How to convert your old radio console for high fidelity music and stereo sound with new components.

NOW that we have a rash of packaged hi-fi and stereo sets on the market, it is a good idea to look over your old radio console and see whether or not it can be converted for modern high fidelity and stereophonic sound instead of junking it. Many old console-type





SMALL PHOTO above, with door open, shows completed installation of FM tuner and the stereo amplifier. Not visible are two new speakers and turntable.

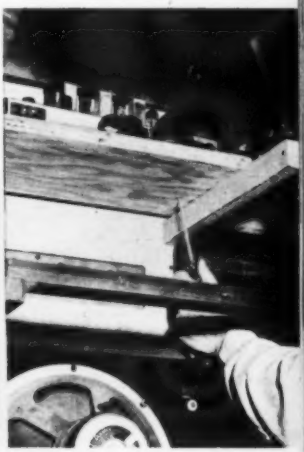


THE FIRST STEP is to remove all of the old radio gear from the innards. This includes the chassis, the two speakers and turntable.

NEXT, USE the template supplied with the new FM tuner and stereo amplifier, to cut a new mounting panel for the front of set.

A JIG SAW is used to cut out holes in the mounting boards for two new 12-inch high fidelity speakers.

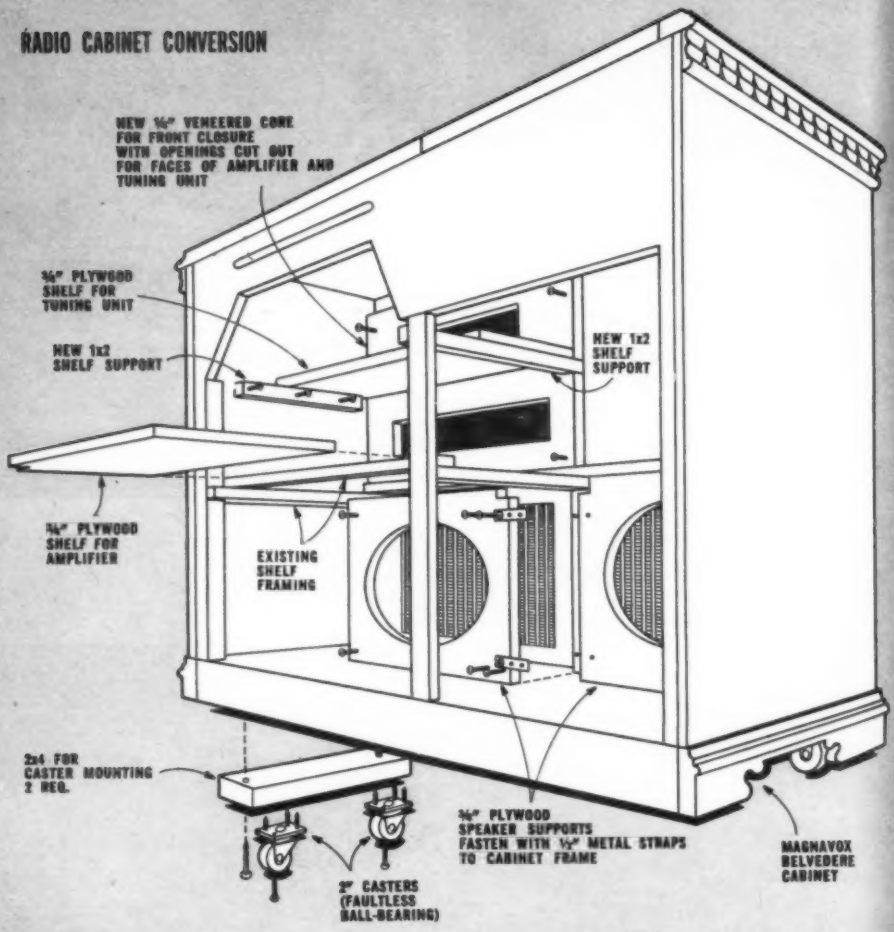
MARKING ¾-inch thick plywood panel for the turntable motor which replaced the old record changer. Note taped template.



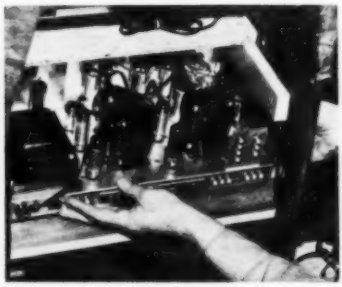
EICO FM TUNER is installed on a new upper shelf in radio console. Amplifier goes below.

radio sets were, and still are, exquisite examples of fine cabinetry. Typical is the Magnavox Belvedere radio, shown on this page. In its day it was a fine set, in fact it boasted two 12-inch speakers and even had provision for an FM tuner! So the decision was made to upgrade the set instead of storing it down the cellar. (For isn't that where all radio sets go which are "too good to throw out?")

RADIO CABINET CONVERSION



INSERTING THE SHELF for the amplifier. Note the cut-outs to clear internal reinforcing ribs. The shelf is screwed to the cleats.



INSTALLING the stereo amplifier on the previously prepared shelf. The amplifier should be fastened to the shelf from below with bolts.

MOUNTING the two 12-inch tri-axial Knight high fidelity speakers on respective boards.

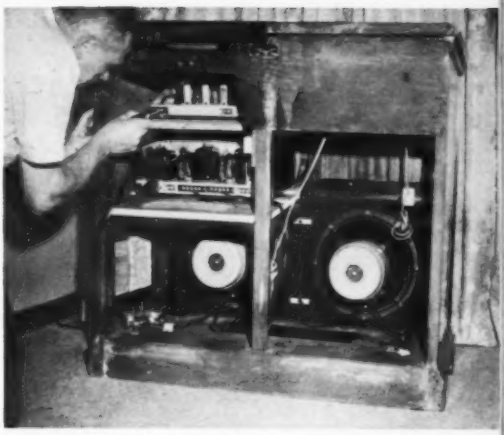
Having come to *this* decision, the next decision was to determine which available components to get for the innards without ruining the outward appearance of the cabinet. This old Magnavox (similar styles were made by RCA, Philco, Zenith and many other manufacturers) had a combination AM tuner and amplifier, two 12-inch 250-ohm speakers and a record changer. Speaker substitution was no problem, as 12 inches is still 12 inches no matter who the manufacturer is.

Speaker choice was a pair of Knight triaxial high fidelity speakers. A bit of careful measurement indicated that a Rek-O-Kut turntable and matching arm would fit the space where the old record changer was formerly located. An Eico FM tuner and an Eico stereo amplifier were the choice for the "working" part of the conversion.

The next step, of course, was to remove all the old components: the amplifier, the two speakers and the record changer. This left a sad-looking cabinet, full of dust and cobwebs. A vacuum cleaner and a damp rag soon cleared up *that* debris. Before any more work was done the cabinet was turned upside down—such an ignominious position—so that double ball-bearing casters could be mounted as shown in the drawing. These casters are invisible as they are mounted behind the existing legs. Clearance should be carefully checked so that wheels can swivel without interference from the legs. Casters were used for it was soon realized that a lot of pushing and pulling would be done while the shelves for the components and the components themselves were being mounted and installed. The casters proved to be a real back-saver.

A suitable front panel cut out of quarter-inch mahogany plywood to accept the tuner and amplifier was next in order. Templates supplied with the tuner and amplifier were used before any actual drilling or cutting took place.

The next problem was to make a shelf support for the tuning unit and a similar shelf support for the amplifier. The tuner and the amplifier were temporarily installed and checked against the new front panel. Some trimming and shimming was required (a trial and error system) but finally the tuner and amplifier rested in their proper position with the control buttons projecting through their respective holes.



HOOKING up the components, note speakers are mounted on two ¾-in. plywood boards.

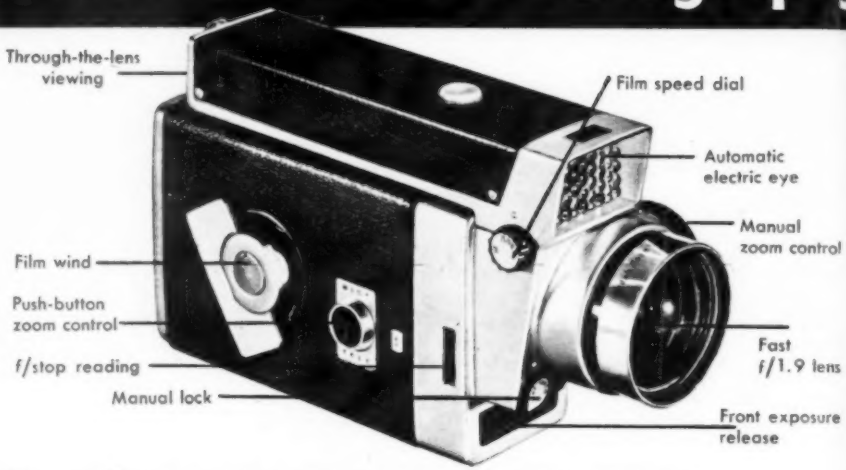
ALL SET FOR a bit o' Bach. Rek-O-Kut turntable accepts LP's and the old 78 rpm records.

Templates supplied for the turntable were taped to a ¾-inch plywood board and carbon paper and a pencil were used to transpose the markings to the board. An important change was made in the position of the turntable: it was located a scant four inches below the top of the cabinet instead of the previous ten inches. Moving the turntable closer to the top of the cabinet was found to be much more convenient than having it on the bottom of a well.

Final construction was to cut two ¾-inch-thick plywood boards to house the two speakers. The speakers were not

[*Continued on page* 153]

New Ideas in Photography

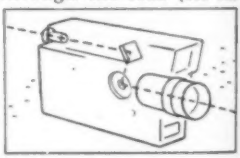


New Electric-Eye Camera Lets You Make Zoom Effects with Push-Button Ease

With the new Kodak Zoom 8 Reflex Camera, one button operates the camera *and* zooms the lens. Push down, and the lens zooms automatically for a screen-filling close-up. Push upward for a wide-angle view. Zoom in or back—not a second of action is lost. And you see it all, right in the viewfinder, just as it will appear on the screen.

This remarkable 8mm camera also lets you follow the action without stopping to adjust exposure. A built-in electric eye sets lens to changing light conditions automatically. For special lighting effects, you can lock the meter at any indicated exposure that you wish.

Move in as close as 16 inches, using Portra Lens attachments. There's no "parallax error" since you view through the lens (*see the diagram*).



Priced at less than $200, the Kodak Zoom 8 Reflex Camera (Automatic f/1.9) can be yours for as little as $20 down. See your Kodak dealer for exact retail price.

New Kodak Sound 8 Projector—less than $350

New Sound Projector Can Turn All 8mm Home Movies Into "Talkies."

Would you like to add voices, music, sound effects to your 8mm movies—old or new?

It's easy—with the new Kodak Sound 8 Projector. Have Kodak Sonotrack Coating added to your edited film. As you project this film, record your comments, using the microphone that comes with the Sound 8. To add music, connect your phonograph or tape recorder. Immediate playback. To make changes, merely re-record. Recording head is made of Alfenol, ultra-durable new alloy. Kodak Sound 8 Projector shows films at 16 or 24 fps.

from Kodak

One-Billionth Horsepower Controls Exposure in Automatic Cameras

Imagine a rating of 1/1,000,000,000 horsepower. At Kodak, it's jokingly called "oatpower." Yet one "oatpower"—generated by the photocells of Kodak automatic cameras—insures correctly exposed snapshots, slides and movies.

Each photocell is composed of a thin steel plate coated with layers of selenium, cadmium, and gold or platinum. The last layer is about one molecule thin, and is covered with lacquer to seal out moisture.

Works this way. When you aim a Kodak automatic camera, light from the scene falls on the photocell and is converted into electric current. This generates the power that operates the balanced meter mechanism.

The position of this mechanism determines the lens opening. On a sunny day, when you press the shutter release of a Kodak automatic still camera, the lens "squints." In the shade, the lens opens up.

With Kodak automatic movie cameras, the lens opening adjusts *continuously* to changing light conditions.

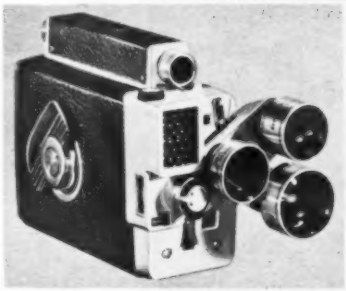
See your Kodak dealer. He can help you choose the automatic camera that best fits your needs from those shown at the right.

These bearing pins are from a Kodak electric-eye system. They have the same .001 points as the LP phono needle shown with them. So precisely balanced is the system that a human hair can be used to move the meter needle through its full range.

Picture it now . . . enjoy it again and again

Brownie Starmatic Camera, less than $30.

Kodak Automatic 35 Camera, less than $90.



Kodak Cine Automatic Turret Camera, f/1.9, less than $125.

Brownie Automatic Movie Camera, f/2.3, less than $78.

Prices are subject to change without notice.

EASTMAN KODAK COMPANY, Rochester 4, N. Y.

Kodak TRADEMARK

See Kodak's "Ed Sullivan Show" and "Adventures of Ozzie and Harriet"

For any car on any road the world's best engine life preserver is

Quaker State Motor Oil

Keep your car on the road, out of the repair shop. Insist on Quaker State Motor Oil, super-refined from 100% Pennsylvania Grade Crude Oil, for complete engine protection. *For the name of your nearest dealer, call Western Union by number and ask for Operator 25.*

Quaker State Oil Refining Corp., Oil City, Pa.

Vacation Cruising

[*Continued from page* 111]

ing the helm with a tense grip to keep the boat on course; the salt spray coats your windshield and blows in the side to sting your eyes; you don't make as much headway and you burn more fuel; it's generally a long way in and out of harbors; there are stretches with no sheltered harbors; the weather is more likely to stop your progress; and engine failure can mean a capsized light boat if the sea kicks up while you're stranded. At best, offshore cruising in a small boat should be done in short hops with solid forecasts of fair weather. But we'll take the inland waterways every time for a vacation rather than an exercise—except, perhaps, for island-studded coastal waters such as are found in the Pacific Northwest.

Boat handling is a subject we couldn't begin to cover here. Instead, we'd recommend a book like *Piloting, Seamanship and Small Boat Handling,* by Chapman. But we will say that boating requires everything the title of that book implies. It isn't complicated—more a matter of alertness, common sense and courtesy. In fact, the sure knowledge and skill in handling your craft is one of the great pleasures of boating. Yet too many people think they know how to handle a boat because they can make it go, turn, back up and stop. They're the kind who speed between moored boats, tie up with four feet of clothesline when the tide is going to drop to six feet, keep to the left of a channel instead of the right or smoke when they're overfilling their gas tanks. So learn the ropes (they're *lines* on a boat); you'll have a safer, less embarrassing, more enjoyable time.

Planning for a cruise means deciding where you want to go and getting all the information you can about the area. Two good initial sources are the Chamber of Commerce division in any state, and the major oil companies, several of which supply free cruising guides and information about the larger bodies of water. The cruising guides, however, are small-scale and not for navigation. Detailed navigation charts for inland waters are available at nominal fees from U. S. Army Engineer District, Lake Survey, Corps of

[*Continued on page* 150]

406.6 m.p.h.! Mickey Thompson sets a one-way land speed record at Bonneville in his Champion-sparked Challenger I.

Spark your car with Champions— the plugs that powered the world's fastest car!

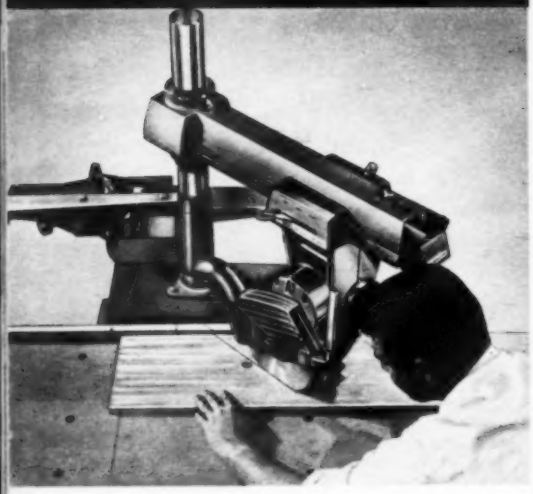
Over *twice* as many car makers specify Champions for top performance. Above: Champion-equipped Ford Thunderbird.

Men who shoot for new records know they have to squeeze every bit of performance out of their engines. They demand efficiency and full-firing power. That's why they choose Champion spark plugs. Put a new set of Champions in *your* car every 10,000 miles. They'll deliver all the performance built into your engine . . . and they'll save money on gasoline!

CHAMPION

YUBA
SAWSMITH
. . . the Complete Home Work Shop with exclusive

ADD-A-TOOL!
Most versatile of all radial arm saws, SAWSMITH swivels and tilts for *any* cut . . . flips from one operation to the next with a twist of the wrist . . . performs 14 basic woodworking operations with dial-controlled speed. Only $239.00



Now with optional ADD-A-TOOLS: Jointer, Bandsaw, Belt Sander, Paint Sprayer-Compressor, SAWSMITH performs every conceivable operation . . . from a single motor, a single stand!

ACCESSORY SALE
Up to $45.00 Bonus Value
Choose any 5 SAWSMITH Accessories for 1c each or select a $39.95 cabinet storage base for only 5 pennies when you buy a SAWSMITH. Limited time offer!

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Vacation Cruising

[*Continued from page* 148]

Engineers, 630 Federal Bldg., Detroit 26, Mich., and coastal navigation charts are available from U. S. Coast and Geodetic Survey Office, Washington, D. C. or local agents. For Canada, provincial tourist bureaus will lend a hand and charts are available from Canadian Hydrographic Service, Surveys and Mapping Branch, Dept. of Mines and Technical Surveys, Ottawa, Ontario. So plot your course and cast off at the earliest opportunity. We never met anyone who regretted it. •

Build Turnabout

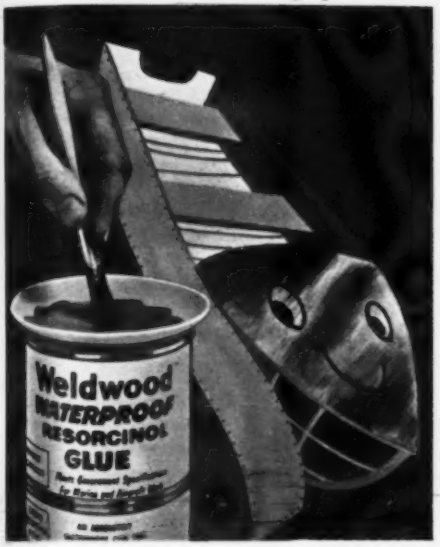
[*Continued from page* 137]

miniously towed behind a speedboat.

Now, weekends on the water are a reality. We watch tides like a harbormaster and keep our radio tuned in for small craft warnings. Our ten-footer boasts no cabin but its five-foot beam gives us unusual small boat stability. We've enjoyed our first taste of wave tops whipped into our faces by a 15-mile an hour breeze. We've heard the satisfying crack of the main sail as we've jibbed from a port to starboard tack. Our boom rides high enough overhead not to crack a skull and our mainsheet holds the little Sea Horse like a rein holds a horse on shore. We've laced our language with nautical talk and regularly threaten to send a 16-pound shot across the bow of a too-close speedboat. The wife has learned how really salty our language can become when she confuses lines on cleats and drops the sail instead of the centerboard!

The Turnabout was built with the usual hand tools and three power tools: an electric sander; a quarter-inch electric drill with assorted drills, countersink and screwdriver accessory, which took the hard labor out of putting in over 900 screws; and the saber saw we borrowed to trim the plywood overhangs. The overall length of the Turnabout is 9 feet 8 inches, beam 5 feet 3 inches, weight 200 lbs., mast 18 feet and sail area 60 square feet. The kit, which is manufactured by Harold R. Turner, Route 1A, Parker River, Newbury, Mass., costs $269.50 including sail. •

Insure your boating pleasure three ways—with Weldwood



Make waterproof repairs that last with WELDWOOD RESORCINOL GLUE

Prevent rot and warp with WELDWOOD WOOD PRESERVATIVE

Protect your boat's beauty with WELDWOOD SPAR VARNISH

Once your boat's in the water, you don't want to spend time working to keep her afloat, you want to enjoy her. So give your boat the attention she needs now. These three marine products by Weldwood® can help you do the job better—and do it more easily. They're sold at leading marine and lumber, paint, and hardware dealers'.

WELDWOOD WATERPROOF RESORCINOL GLUE is best for *all* boat repairs, *essential* for any below-the-waterline gluing jobs (it's *guaranteed* waterproof). Makes a powerful bond, resists fungus, rot, heat, oils. From $1.15.

WELDWOOD WOOD PRESERVATIVE contains high potency 5% Pentachlorophenol and deeply penetrating oils. Prevents rot, mildew, warping; retards shrinking and swelling. From $1.35.

WELDWOOD EXTERIOR CLEAR SPAR VARNISH gives a high gloss, clear finish, unexcelled for resistance to wear, discoloration, fungus, checking—even in severe conditions. From $1.59.

ADHESIVES
WELDWOOD
WOOD FINISHES

Products of United States Plywood

Two-Temperature Heating System

[*Continued from page* 136]

so that the burner cycle will occur four to six times an hour instead of just once or twice. This will cause the burner to operate the same total minutes per hour but the *on* cycles will be more frequent. Result: smoother heating.

Usually a system's heating performance is greatly improved following these adjustments and in many instances balanced heating is completely restored. However, if adjustment fails to correct the trouble it will be necessary to consider "zoning" your house for additional thermostats.

As a first step, place a thermometer in the center of each room and about three feet from the floor. After 30 minutes record the reading of each one on a paper ruled with columns representing each room. Fifteen minutes later take another set of readings and a third set after a similar time interval. Then compare them, room against room. Any room that is consistently more than three or four degrees warmer or cooler than the room with the thermostat should be noted.

To regulate the heat flow of a forced warm-air system, locate the ducts in the basement that supply the warm-air registers in each of the rooms you have noted. The dampers on ducts leading to overheated rooms should be closed slightly; conversely, those on ducts leading to underheated rooms should be opened slightly.

After half an hour, take another set of room air temperature readings. These may show that the adjustments you made have slightly changed the heat flow to some of the other rooms; consequently, further adjustments may be required. Balancing a heating system in this manner may require several evenings, but it is the same "zeroing-in" method used by professional heating men.

Balancing a hot-water heating system is a little more complicated. If a room remains cold, even after the radiator valve has been turned wide open, a larger radiator may be needed.

Now review the last set of room air temperature readings. If all are within two or three degrees of each other, additional thermostats will probably not be necessary. But before deciding, examine the readings for each individual room. For instance, if temperature fluctuations in most of the rooms were negligible, but varied by four or five degrees in the basement recreation room, it would be evident that this room needs an individually controlled heat supply and a thermostat of its own.

Zoning. The use of two or more thermostats is known as "zone-control" heating; that is, the house is divided into zones, each one with its own heating requirements and thermostat. To divide your house into the necessary zones, refer to the temperature readings you have taken; at the same time take into account the following common "zone areas:"

(1) Any rooms over an unheated area (such as a garage) should be grouped into one zone. Basement rooms should also comprise a separate zone.

(2) Each level of a split-level or multi-level house should be a separate zone with its own thermostat.

(3) A room in an extended wing of the house that is exposed to the weather on three sides will require more heat during cold weather than the more sheltered rooms in the rest of the house. Such a room should have its own thermostat.

(4) A room with extensive window area requires a lot of heat at frequent intervals; hence, it too should have its own heat supply and thermostat.

(5) As a rule south rooms require less heat than north rooms, especially when the sun is shining. Therefore, the south and the north rooms are frequently grouped into separate zones, each zone having its own thermostat.

(6) A room with a fireplace will require less heat from the heating system when the fire is burning, so it too should have its own thermostat.

(7) Consider dividing the house into a living zone and a sleeping zone, each with its own thermostat, since cooler temperatures in the occupied sleeping zone may be desired at night.

Each zone must receive heat from the furnace or boiler through its own supply line. This is done on a forced warm-air system by means of a damper which is placed in the duct and is opened or closed

by a small electrical device responsive to its thermostat. On a hot-water system, heat control to each zone is governed by an electrically operated valve in each pipe main supplying a zone. In either case, avoid *completely* stopping heat flow to any zone.

All the warm-air registers in a particular zone must be supplied from the duct that is common to that zone. Many centrally located furnaces have two main ducts that lead off in opposite directions. In such cases, if all the rooms at one end of the house are in one zone and those at the other end in another, it will be necessary only to insert a damper with a modulator operator in each of the main ducts; this then will complete the job except for the wiring.

When the basement recreation room constitutes one zone and the rest of the house another, damper installation is equally simple: one damper is inserted in the duct supplying the basement and another in the main duct supplying the rest of the house.

If your house divides itself naturally into two zones, you have a choice of two types of operation, both modulatory. The first uses an independently operated thermostat, damper and damper operating mechanism for each zone. The second, and less expensive system, calls for one thermostat in the main area of the house and another in the lower level. The upstairs thermostat controls the burner; the lower-level thermostat activates a single damper operator that controls the two dampers—one in the main duct supplying the rooms on the main floor and the other in the duct supplying the lower level. The action of the lower-level thermostat diverts just the right amount of heat to the lower-level rooms. This type of operation can be used with any two-zone layout, but not in a house divided into three or more zones. In the latter case a separate thermostat, damper and damper operator must be furnished for each zone.

It is hoped this article will help you determine (1) whether or not your house needs more than one thermostat; and (2) if so, how to divide your house into heating zones. However, unless you are unusually skilled in sheet-metal work or in pipe fitting, know and understand electrical circuits, call in a professional. •

Modernize Old Radio

[*Continued from page* 145]

mounted on a single board as it was impossible to place the board against the front of the cabinet because of interference from reinforcing struts. Two separate panels, one for each speaker, were necessary. The two speakers were temporarily mounted on their respective boards for placement and then removed. The boards were then fastened to the front of the cabinet with flathead wood screws and then the speakers were installed. Two short metal strips, one at the top and one at the bottom, keep the speaker boards in place. This was necessary as only in the exact center of the cabinet was there sufficient wood to engage a screw.

Then came the pleasant and comparatively easy task of wiring the components to each other. We experienced a most alarming hum when the amplifier was turned to "phone." Hum is a common occurrence with stereo cartridges. We tracked down the demon and killed him dead in his tracks by grounding the pickup arm and the two chassis.

Because the two speakers are so close together, you don't have to be in any particular part of the room in order to hear stereo sound. The so-called stereo effect is muted but the sound is splendid. After all, what is more important stereo sound or good music? However, if you prefer the full stereo effect with sound coming from two sources, the two speakers in the cabinet can be hooked up in parallel with an auxiliary speaker at the opposite end of the room. Try it with your old radio console. *R.B.*

LIST OF COMPONENTS

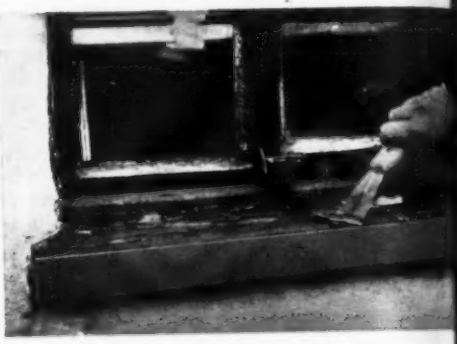
Speakers	Two 12-inch Knight KN 800A
Tuner	Eico, FM, No. HFT-90
Amplifier	Eico, Dual Amplifier-Preamplifier, No. HF-81
Turntable	Rek-O-Kut, L37H, Stereotable
Pickup Arm	Rek-O-Kut, No. S-120
Cartridge	Shure, Stereo Dynette, M7D

Always thread a nut onto a bolt you are going to shorten with a hack saw; the threads at the cut will then be realigned when the nut is backed off.

NEW WINDOW SILL

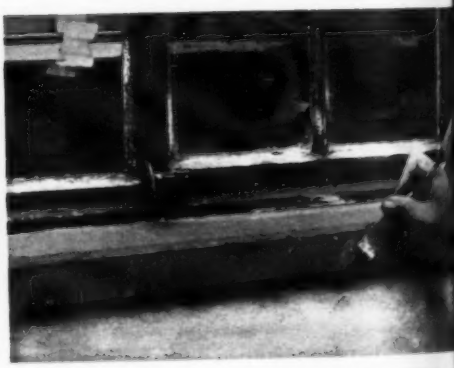
OLD SILL absorbs moisture, paint flakes.

DURAPLY nailed to sanded front surface.



FLAKED PAINT is then scraped off the top.

TOP is nailed after calking at the rear.



NAILS are counterset and holes puttied.

PAINTING finishes it.

AN old window sill that swells and shrinks and causes the paint to flake off is easily resurfaced with Weldwood Duraply, an exterior plywood with a resin-impregnated fiber sheet permanently bonded to the wood. This plywood won't absorb moisture if the edges are sealed and, since the surface is stable, the paint will stay put without checking or blistering. •

Your New Buick Special

[*Continued from page* 141]

tween cylinders should not exceed 15 pounds.

Partly because of the hydraulic valve lifters only oil designated for service MS or for service DG should be used. These are heavy duty oils. Oils marked for service ML or for service MM should not be used with the Special's engine. Don't forget that while these oils are designed to prove a wide adaptability they too should be selected for the season of the year. These are the SAE 5W-10W or 5W-20W for 10° below zero weather as well as the 10W-30 or 10W-20 for temperature *not lower* than 10° below and the 10W-30 or 10W-20 for temperatures above freezing.

In the break-in period Buick advises against a maximum speed of more than 50 mph during the first 300 miles. Don't subject the engine to full throttle acceleration or high speed until it is well warmed up.

It is a good idea to lubricate the door, trunk and side roof rail weatherstripping, as well as the seal of the hood cowl, with a little silicone rubber lube. For the windshield wiper motor crank pin a little engine oil is the deal.

Cleaning the air cleaner calls for a few precautions. Use kerosene. Be sure to squeeze the element, do not wring it. Clean every 5,000 miles. Then saturate the element with 10W-30 oil and squeeze so that it is merely damp dry.

To drain the cooling system, remove the pipe plugs on each side of the cylinder block, in addition to opening the radiator drain cock. The system has a capacity of 12 quarts without heater, 13.5 quarts with heater. A feature of the new Buick automatic transmission is that it is air-cooled. Air enters through ports in the engine block and then flows downward through holes in the flywheel until it reaches the converter pump housing. It finally exits through louvered holes located in the bottom cover.

The manual transmission holds 2¼ pints of lube while the rear axle housing has a capacity of 2½ pints. The engine takes four quarts of oil with another quart for a "dry" oil filter.

That about wraps up the special care you'll need for this quality compact. •

Photography Today

[*Continued from page* 133]

Re-cycling time is rather short, between six and eight seconds on AC and 12 to 14 seconds, with fresh batteries. All in all, this handsome package of canned illumination has what it takes and should stimulate broader use of electronic flash for all-round use. Its cost is $59.95.

* * *

A LONG time ago the Eastman Kodak Company had a slogan "You press the button, we do the rest." It referred to a camera that was loaded at the factory for 100 exposures. After a summer of snap-shooting, the owner would mail the camera to Eastman, the film would be processed, pictures would be printed and back would come the camera with a fresh load of film good for another season of picture taking. When was this remarkable camera produced? Well, boys and girls, somewhere around 1900!

Now we have a brand-new version in the Kodak Automatic III introduced by Eastman. It is a member of the Retina family and has enough automatic control features to gladden the hearts of any photo fan. First of all it has a photo-electric exposure meter to control the lens diaphragm. This meter will set the camera automatically to the correct lens opening for any one of five shutter speeds, 1/30th to 1/500th of a second. If the light is not sufficient for a properly exposed negative, the shutter will lock and a stop signal appears in the finder.

The camera has a coincident-type range finder combined with a view finder. The range finder is directly coupled to a color-corrected 45mm f-2.8 Xenar lens. The camera will focus as closely as 3½ feet. The Compur shutter is, of course, synchronized for flash. Accidental double exposure is impossible. However, a double exposure can be deliberately made when special effects are desired.

A lever operated with a single stroke advances the film, cocks the shutter and sets and exposure counter. The film rewind knob can be set at a symbol so the user will know just what type of film he has inside the camera. An excellent job by the General Motors of the photographic industry, it sells for a shade under $130. •

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WELLER ELECTRIC CORP., EASTON, PA.

Cape Canaveral

[*Continued from page* 71]

the machines are the judge and jury. The RSO is merely the executioner. He carries out the judgment of the maze of electronic gear at his fingertips—but he must do it instantly and without error. Needless to say, it takes a cool, detached mind to destroy a multi-million dollar rocket with a single flip of a switch.

The world knew little of Canaveral mishaps until the celebrated post-Sputnik Vanguard satellite vehicle of December 6, 1957, rose three feet and then sat down on its pad. But missiles were misfiring at Canaveral long before that. One of the wackiest of the earlier incidents involved a usually-reliable Redstone Intermediate Range Missile. It went up, did a back flip, then dived backward, landing some 1,500 feet in back of the Cape's old fire station. The impact concussion blew in all the windows and the back doors of the firehouse, and caved in the side and lifted the roof an inch off a neighboring supply hangar, scattering bins of nuts and bolts.

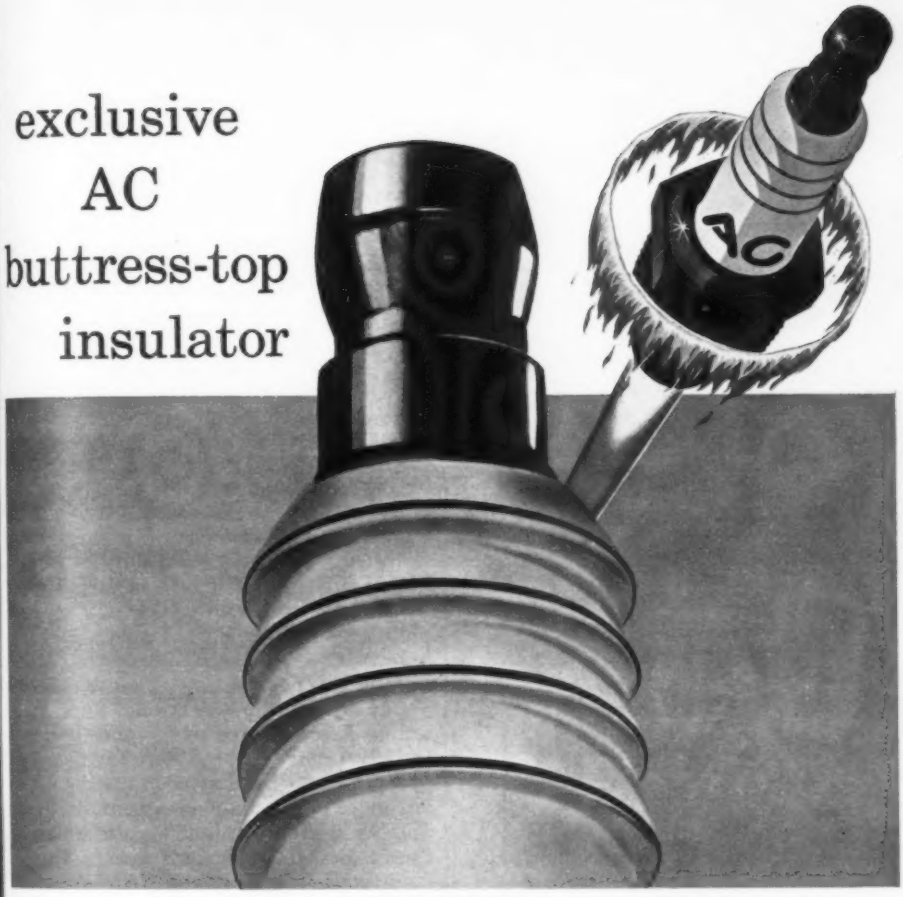
Probably the most widely-known failure at the Cape was the Juno II moon rocket that went berserk on July 16, 1959. Tabbed the "kitchen sink" project because of its all-purpose satellite, the Juno had a short, spectacular flight seen by millions across the nation on Edward R. Murrow's TV epic, Biography Of A Missile.

With hundreds of live witnesses, including the leading space newsmen of the world, the 76-foot, four-stage Juno rose about 100 feet, then wheeled drunkenly sideways in a horizontal arc. The Range Safety Officer pushed the Destruct button and flaming metallic fragments showered down within 50 yards of the blockhouse. Heartbroken scientists inside the blockhouse looked on more in disappointment than in fear while outside newsmen scurried for cover. The explosion was so close that blockhouse personnel had to sit out a safety waiting period before they could leave.

In terms of property damage, the worst explosion in the Cape's history occurred September 24, 1959—one year to the day after the Polaris mishap. Just eleven days

[*Continued on page* 158]

exclusive AC buttress-top insulator



provides longer flashover path— assures quick starts in all weather

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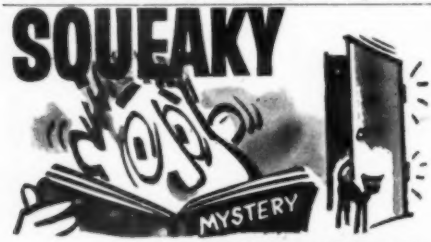
SQUEAKY



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Cape Canaveral

[*Continued from page* 156]

earlier, Russia had launched their Lunar Probe of September 13. Cape missilemen anxiously groomed a 100-foot-tall Atlas-Able super rocket that was to carry a 375-pound satellite into a moon orbit.

As the count reached zero on a routine static test—where the missile is held in place on its pad to test the engines—the massive rocket, without warning, erupted in a prodigious explosion that blanketed the entire pad in orange flames and billowing black smoke. Force of the blast literally shook the six-foot-thick concrete walls of the blockhouse—100 yards away. The launch stand structure and both umbilical towers were substantially damaged, and windows were blown out over 800 feet away. The main guard shack at the far end of the area was riddled with shrapnel holes in the walls, and all windows were smashed.

The only injury of note occurred when the concussion wave knocked a security policeman—on duty inside a building a mile away—clear across the room, "whiplashing" his neck.

But despite the sensational flops, there are 10 successes for every one that ends in fiery failure. Lessons are learned from every backfire, and as each missile enters advanced stages of development, the fizzles notably decrease. The Thor Intermediate Range Ballistic Missile, for instance, ran up a string of 16 straight successes two years ago, and just last year, the big Atlas chalked up 17 straight before one failed.

New missile programs will inevitably have their mishaps too, and Cape Canaveral will undoubtedly have some more spectacular close calls. But with well planned and carefully practiced safety procedures, that's what they'll always be—just close calls. •

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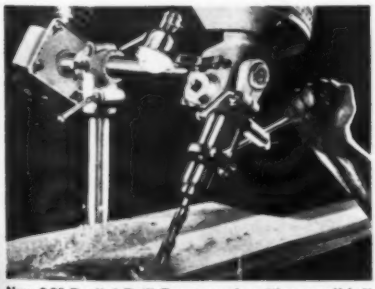

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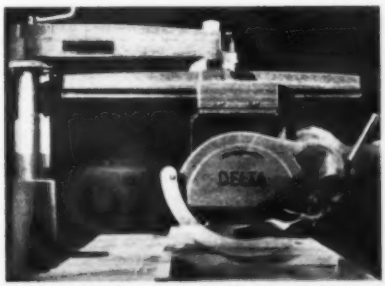

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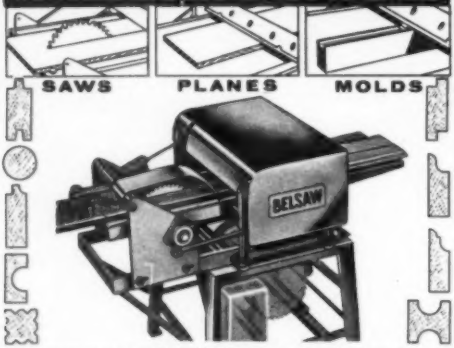

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Name _____
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Outdoors Letters

[*Continued from page 74*]

water, even in the ocean. The appearance might be marred with dried salt but, other than that, we know of many Aluma Craft used constantly in salt water for over ten years without harm. To preserve the finish, wax the hull. We are willing to back up this statement any time."

● *I see Dacron advertised as the best of all fillers for sleeping bags but my brother says we need feathers or wool, that Dacron can't be warm because he bought a suit of this material and it was cooler than wool. What is the truth about Dacron-filled bags?*

Robert Craig
Youngstown, Ohio

The Dacron in sleeping bags is not the Dacron used in clothing materials but a specially engineered fiber for filled products. It is warm, resilient, lightweight, compact, insect-resistant and will not absorb moisture. I'd say that a Dacron-filled bag, if of the proper weight for the climate in which you intend to use it, will give you years of satisfactory service.

● *A store around here is carrying shotguns with barrels as long as 36 inches and they are advertising that these long barrels will shoot further. I bought one for goose shooting but can't get any better distance than I did with my old 30-inch barrel. What's wrong?*

Abraham Cox
Salem, Ore.

The longer barrel gives no more distance than the 30- or even 28-inch barrel, nor does it shoot harder, as some think. The gun is, however, a lot heavier to lug around and is sure to tire you out hours before a short-barrelled shotgun will in a field hunt.

● *I have heard all sorts of arguments about the proper shotgun load for wild turkeys. What is your opinion?*

Carl Wolf
Columbia, S. C.

For turkeys I like a three-shell capacity automatic, 12-gauge shotgun carrying the following loads: one shell of #6 shot, field load; one of #4 shot magnum load; and the third of #2 shot magnum load, to fire

in that order—for what I hope are obvious reasons.

• *I recently bought an automatic 12-gauge shotgun of the single barrel type. The barrel is 28 inches long and has a modified choke. Now, this is fine for field shooting but what do I do if I want ducks or geese? Some people say I should get an extra 30-inch full choke barrel, others say I should have a polychoke device that enables you to change the choke in the field. Which is best?*

Jake Potter
Chicago, Ill.

Offhand, I'd say you'd be better off (and at much less cost) by having a polychoke device installed on your present barrel. An extra barrel, besides being cumbersome to carry, gives only one change of choke. •

15 Years Of Testing

[*Continued from page* 85]

mph. The next year, in a Mark VII Jaguar, I won the Speed Trials again and set a world's record at that time for sedans at an average speed of 100.97 mph. Today, the guy with the popsicle truck can do better.

Many of our earlier test stories came from Briggs Cunningham's factory in Palm Beach, Fla. Briggs was building the best sports cars in America at that time. In addition to this, he always owned the latest automotive exotics from everywhere. Some of the cars that Briggs supplied for tests on these pages, in addition to his own Cunninghams, were the Bentley Continental, the Jowett Jupiter, Aston-Martin, the first Porsche, several Mercedes and many others.

The piece that created the biggest racket among the sports car buffs was my first test of the British Aston-Martin, which took three days. I thought the car was a real dog in the handling department and enlisted the help of America's greatest sports car driver of all time, Phil Walters, and the late Miles Collier. Walters frankly stated that the Aston scared him when it got up to around 120 mph because it started to road tramp and the slightest puff of wind would take it from one side of the road to the other. When I wrote this in July 1951,

[*Continued on page* 162]

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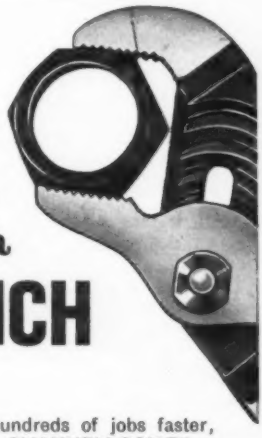

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15 Years Of Testing

[*Continued from page* 161]

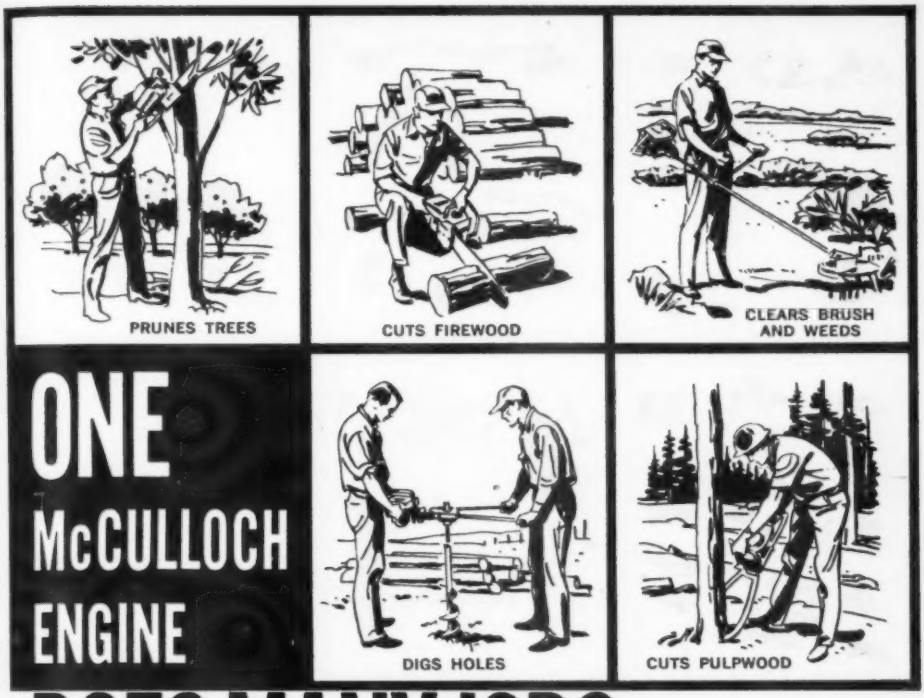
knowing full well that many of the sports car publications were starry-eyed about the Aston's greatness, I was all but smothered with protests and claims of incompetence by well-meaning, unknowledgeable buffs. After our article hit the stands, the front-end fault was corrected at the Aston-Martin factory and the front end of our test car was reworked by Alfred Momo. The car soon became a gem but the very fact that I had dared criticize it at all brought irate letters that kept coming for a good six or seven years. Briggs sold the car several years later and a pal of mine on the Eastern shore of Maryland now owns it.

I went to Europe twice with Briggs Cunningham's American sports car team and Joe, my Labrador Retriever, was the team's official mascot, wearing his blue and white sweater in the Cunningham pits at LeMans. Joe was a great pal and we still miss him, though Boji does his best to take his place.

In the development of car performance to its present day height, many wonderful things paved the way. Bill Frick's Fordillac (a '49 Ford with a '49 Cadillac engine), which he developed with Briggs Cunningham and Phil Walters, was a tough blow at the time to the hotrodders. When I matched my MI Ford against Cunningham and the Fordillac, he could take me every time at 0-60 mph, which he could ravel off in a hair under nine seconds against my ten flat, but I'd take him on the top end when he ran out of gears. Bill Frick's Fordillac set back the hop-up and hotrod boys for several years as no amount of equipment added to the standard Ford block of the day could out-torque or out-drag that then-big Caddy engine in a Ford chassis. Today a Valiant with a kit could eat the Fordillac alive.

What started the whole sports car business in this country (and don't let anyone tell you differently) was the first MG-TC. A great driver named Harry Rummins from the MG factory spent all his daylight hours for months running up and down southern California canyons and mountain trails, challenging everyone and everything to a "bit of a drag" or "a short

[*Continued on page* 164]



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15 Years Of Testing

[*Continued from page* 162]

go." He creamed dozens of movie stars and other celebrities in their Duesenbergs, Cadillacs and all sorts of unglamorous, logy specials of the day. Soon the talk got around that a guy in a little red sports car was the hottest thing on the Pacific Coast. I raced Harry Rummins in 1948 from Los Angeles to San Francisco, a distance of roughly 500 miles. I was driving a '48 Mercury and he was in that little spider-wheeled red bomb. It's ancient history that he beat my brains out—and I was pulling every trick in the book just to stay on the road and alive. *This* was the car and *this* was the guy—Harry Rummins and the smartest piece of quiet merchandising ever pulled. It got Americans thinking about sports cars. Harry Rummins' TC was the first sports car test we ever ran.

I took delivery of the first T'bird sold in 1954. This job won the sports car division of the Speed Trials in 1955 at a speed of 126.9, once I had given it a real King Kong tune-up and selected the right rear-axle ratio, after trying nine different ones. The story of my Mexican Lincoln in '53, one of the greatest cars I ever owned, told how it failed in the Daytona Beach Speed Trials when a generator bushing froze as I entered the traps. The introduction of the first Chrysler 300s in 1955 was another big milestone in American car performance. Then the hot Chevys and Pontiacs that followed made their marks and the great Chrysler 300F that got down the beach at better than 149 mph winds up performance to date—but performance value is now taking quite a breather.

Ten years ago, when 0-60 mph in ten seconds and a real 100 mph were sensational, performance was a major selling point for many automobiles. It's still a point but not nearly as strong as it once was. With the introduction of American compacts on a large scale (following the trail blazed by George Romney's Ramblers), the sales pitch has shifted to such things as economy, comfort and "adequate" performance. As this is being written, big-time Detroit is still in doubt as to how far the compact craze will go. Many are building compromise rigs so they can jump

[*Continued on page* 166]

Warns Of Hay Fever Danger

Hay fever can lead to asthma for about a third of today's sufferers if they relieve only the symptoms and do not attack the causes, Dr. James A. McLean, an allergist at the University of Michigan Medical Center, has warned. He said antihistamines and trips to low-pollen areas do not prevent a hay fever victim's progression into an asthma victim. However, this progression may be stopped by injections of the substance the patient is allergic to, Dr. McLean said.

Baths For High Blood Pressure

Partial bathing helps patients with high blood pressure, Dr. Takashi Sugiyama, Tohoku University Institute of Balneology, Japan, reported at the Third International Congress of Physical Medicine. Dr. Sugiyama said a simple partial-bathing apparatus he devised had a normalizing action on blood pressure, which continues to fall with its use for two to three weeks. Water bathing of the whole body or partial bathing of the extremities is a popular form of therapy in Japan.

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15 Years Of Testing

[*Continued from page* 164]

either way. Even the larger cars are being shaved down in size, as the honest guys in Detroit will tell you they just don't know what people are going to want in the future. More emphasis is being given today to operational economy than has been given to it in over ten years. The new materials such as plastics and aluminum are being utilized as weight-saving measures in an effort to squeeze out another mile or two per gallon.

Personally, I feel much of this economy stuff is a farce. Covering a story for MI well over 13 years ago, I sat at a luncheon in New York where one of the engineering greats of the industry got up and made the following statement: "Some day we'll have cars on the road with 10:1 compression ratio and when we do, *all* cars will get better than 30 miles to a gallon." (6.5:1 was a typical compression ratio at that time.) Well, I have three cars in my garage right now; all three of them have compression ratios higher than 10:1. I won't even tell you whether I get 30 miles to a gallon or not—you know damn well I don't. So wha' hoppen? Since that highly-touted engineer made that statement, engine sizes have almost doubled; horsepower has more than doubled, and we've added a jungle-full of accessories and power assists. Today the owner of a 10:1 and higher compression ratio car averages a lot fewer miles per gallon than he did when that speech was made. And don't forget, cars—except the compacts—weigh at least a third more than they used to.

Some of the changes I've seen take place (and for my dough, we'd be better off if

we took them all back) are idiot lights, tubeless tires, small wheels, ridiculously big glass areas which fry you like an overdone pigeon, and rattles we didn't believe were possible just ten years ago.

In summing up, since this test series started, I've tested hundreds of cars and have observed and reported on hundreds of changes. I've seen good cars fail and poor cars continue. It's been a great 15 years but I sometimes ask myself, "What the hell was I drinking the night I thought up car testing?" •

The Pontiac Tempest

[*Continued from page* 89]

to about 50 mph and rode the center line. Then, fortunately for us, we found and followed for the next three hours two full-blown lunatics of the road. One, in an old convertible, whipped by us doing between 65 and 70 mph. Despite the poor visibility, I speeded up, just keeping the red glow of his taillights in view and still riding the center line. Actually, you could make out the taillights almost 100 feet ahead. By straddling the center line I figured if this goof got into trouble I'd still have enough time to swerve left or right after the crash. The fog continued, worse than I've ever seen it, and after about 75 miles the goofball ahead poohed out and pulled over.

About that time we just had to gas up. Creeping along, we found the lights on the slot leading into a turnpike filling station. From the lines on the road and the signs, we knew approximately where the gas pumps had to be in this big Ohio Turnpike station but, on my word of honor, we couldn't *see* them and consumed valuable time trying to find them—that's how bad visibility was. Under the station's floodlights, which just seemed to radiate the fog, visibility was almost nil. When we did find the pumps, the two gas station attendants were standing on the pump islands to keep from being run over! I could see our time and average speed going down the drain.

I had advised the boys at Pontiac and editor Bill Parker to be on hand to meet me when I hit New York, so things looked pretty gloomy. I discussed with Jim the

[*Continued on next page*]

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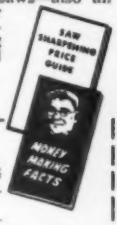

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possibility of calling the whole thing off but we hit the road again and luckily found another guy, in a full nut suit, plowing through the fog at just a hair under 70 mph. Again I tagged right behind. He carried us another 50 miles and then we were on our own. I drove as fast as I dared, under the conditions. At long last, after more than 200 miles of fog, it started to lift near the Pennsylvania line—and soon we were in the clear.

At 11:14 p.m. we entered the Penn Turnpike with time to make up. Another gas stop and 360-plus miles later we hit the New Jersey Turnpike at 5:15 a.m. Daylight came on the Jersey pike. Soon we were at the Lincoln Tunnel, through it and heading crosstown to the Grand Central Station. Exactly 13 hours, 57 minutes and 47 seconds after saying good-by to my wife at the LaSalle Street Station in Chicago, I turned the engine off at the entrance to Grand Central at Vanderbilt Avenue and 43rd St. in New York with more than two hours to kill before the train arrived! After a long, leisurely breakfast at the Biltmore with Bett and Bill Parker and Bob Emerick, we strolled over to the station and waited for the train to pull in. The entire trip had cost Jim and myself just a hair under $20 for fuel and tolls, as against $90 for my wife (and I'm still wondering whether she was worth it).

Now, if that isn't the damndest coast-to-coast economy run you ever heard about, please let me know. Our gas mileage during that last night once fell as low as 23.8 mpg but the overall average for the almost 900-mile trip from Chicago was 24.4 mpg and our average speed was 63.77 mph. That made the average for the entire trip from California, including our race, 26.8 mpg. The little four-cylinder Tempest engine never missed a beat during the entire run and by the time we arrived in New York I was thoroughly sold that here indeed was one great little car. By the way, the Magi-Cruise was a tremendous help on our Chicago to New York run because when we started to tire a little, especially after the beating the fog gave us, it kept us right on schedule. Anyone who buys a Pontiac, big or small, without this gadget is out of his mind. If this sounds like a plug, it is, because I think it's terrific.

[*Continued on page* 170]

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As if the little Tempest hadn't already suffered enough on this trip, we finally loaded into it all the baggage my wife had brought on the train, plus our gear which included typewriters, camera equipment and a month's clothes for the three of us. This meant the entire back seat area and ample trunk were jammed full. So I drove home to Bucks County with my wife in the middle and Jim on the outside—quite a front seat load! However, we had plenty of room due to the fact that there is no transmission hump in the middle.

The Pontiac Tempest is loaded with more features than the Indianapolis Borg-Warner trophy. The engine is up front. It can be ordered in a bagful of varieties including an all-aluminum V8 similar to the F-85 and Buick Special pots, or this new half-a-big-V8 four that defies the keenest ear or touch to determine whether it's a four, six, eight or 12 when doing 50 mph or better. The transmission (and here's a new one) is in the rear. The drive is by a ⅝-inch forged steel rod through a torque tube, bent at the end. All four wheels are independently sprung and the rear features a transaxle (meaning a big, spring-loaded hinge) similar in design to some imports such as Volkswagen, or Chevy's Corvair.

The four-cylinder engine is available in two compression ratios, one for high test (such as we had) and one for regular soup, and you can get it with either single or four-barrel carburetion. There are also a number of rear-axle ratios available. Our test car pulled the economy 3.08. Despite this, it showed an amazing 0-60 mph time of 13.5 seconds with the automatic transmission. With a stick shift and some less-torque-robbing ratios, the Tempest should prove quite a formidable bomb in the compact car races. A truly great feature is that the car sports 15-inch wheels against the 13-inch wheels of most new compacts.

If you're in the market for a compact (and a lot more people are every day) I suggest you thrust your eagle eye on this one because after driving it from Los Angeles to New York I can assure you that it's one helluva practical piece of transportation. It handles well, steers like a breeze without power steering and the ride is comfortable. Also, you *can* jam six in it, if you're a jammer. What more do you want—blood? •

Surplus Boat Bargains

[*Continued from page* 101]

claims that at least half the boats in his yard arrived under their own power. And one surplus boat buyer to my knowledge beached his 45-foot, twin-engined picket boat, quick-caulked it, fiddled with the engines for a week and sailed 100 miles to his home yard. And the average boat buyer who is willing to pay freight or towage home and to spend some time and money on refitting ends up with a seaworthy boat.

How do you start shopping for a surplus boat? First you send a postcard to one of the CSSOs in your area. (See the list at the end of this article.) State that you're interested in surplus boats. By return mail you'll get a Disposal Bidder's List. On it are listed 20 categories of surplus gear, among them one beginning: "Ships, small craft, pontoons—." You check this category and mail the list back to the CSSO, thus putting your name on the CSSO's available surplus boat list. Whenever a sealed bid sale comes up (that's every few months at some CSSOs) you get a catalog listing scores of boats, each carefully described. You have several weeks to choose your dreamboat, look her over at the sales point and submit your sealed bid.

With your bid goes a check or money order covering 20 per cent of your bid choice. In submitting the bid you are contracting to pay the remainder of your bid amount if yours is the highest bid. How to bid and the exact terms of the contract are explained in the catalog, which is properly termed the "Invitation to Bid." You agree to pay the remainder of the bid price within ten days of notice of award, to accept the craft "as is and where is," to remove it from the sales point within a specified time (usually 14 days) and to hold the government blameless and without liability for any action brought against the boat.

Old-timers advise you to look at the boat before bidding, and to look long and carefully. Don't buy a pig in a poke. As to the bidding, this is where your shrewdness comes in. Some bids are as high as 40 per cent of original cost, but the average is about six per cent. For non-engined boats, bid as low as two per cent have been accepted. Maybe your dreamboat will cost

[*Continued on next page*]

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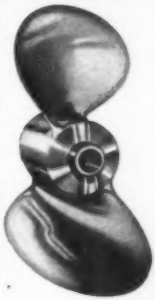

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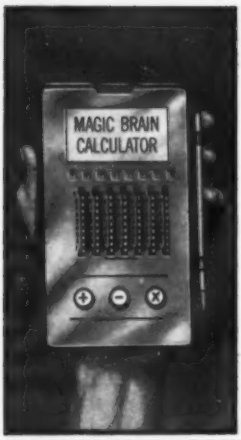

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The following CSSO's are those most likely to handle disposal of surplus boats.

Pacific Northwest: Consolidated Surplus Sales Office, Auburn General Depot (Army), Washington. **Pacific Coast (central):** Consolidated Surplus Sales Office, Oakland Naval Supply Center, Oakland 14, Calif. **Pacific Coast (southern):** Consolidated Surplus Sales Office, U. S. Naval Supply Center, San Diego, Calif. **Texas Gulf:** Consolidated Surplus Sales Office, Kelly AFB, Texas. **Great Lakes:** Consolidated Surplus Sales Office, Rock Island Arsenal, Rock Island, Ill., or Consolidated Surplus Sales Office, Columbus General Depot (Army), Columbus, Ohio. **Gulf Area:** Consolidated Surplus Sales Office, Brookley AFB, Mobile, Ala., or Consolidated Surplus Sales Office, Naval Air Station, Jacksonville, Fla. **Southern Atlantic:** Consolidated Surplus Sales Office, Marine Corps Supply Center, Albany, Ga., or Consolidated Surplus Sales Office, Atlanta General Depot (Army), Atlanta, Ga., or Consolidated Surplus Sales Office, Naval Supply Center, Norfolk, Va. **Middle Atlantic:** Consolidated Surplus Sales Office, Fort Holabird (Army), Baltimore, Md. **North Atlantic:** Consolidated Surplus Sales Office, Philadelphia Naval Shipyard, Philadelphia, Pa., or Consolidated Surplus Sales Office, Newport Naval Supply Depot, Newport, R. I.

DON'T DO-ITS

Mail For McCahill

[*Continued from page* 62]

armored with bulletproof windows. They weigh and cost many times what the normal jobs do. If he were to get a new one every year it wouldn't look too good on the budget.

The Lincoln Continental with spare tire on the back was introduced before World War II and ended with the '48 model. Other American cars which started jamming tires on the back called theirs Continental. Equipment after the styling featured by Lincoln. Today's Lincoln Continentals resemble the originals only in the fact that they also run on air-filled tires.

● *Get more laughs out of your column than a joke book. Are some of those people really dumb or are they just trying to harass you? By the way, I have a question: "How can I get out of this outfit?"*

A Sailor
U.S.S. Salomonie, AO-26
FPO, N. Y.

You might try hanging a picture of Khrushchev over your bunk and calling all your shipmates Comrade. Or ask your C.O. why you can't wear a dress on leave.

● *Recently, on a wet country macadam road, I came around a blind corner perhaps a little too fast. Ahead of me I saw two small children in the middle of the road and a dog on each side—forming a complete roadblock. I was so busy hitting the brakes and trying to steer so I wouldn't touch either the children or the dogs that I couldn't look down to find my half horn ring—just couldn't find it in this emergency. I ended up in the ditch, everybody unharmed, but know that if I could have found the horn with my groping hand, one of the dogs or children would have run to the side of the road, leaving me room, as there was time enough for that. I liked the old-type horn ring that you could reach instantly, regardless of the position of the steering wheel. In this case I realize now that the half ring was at the top of the wheel when I tried to find it, due to the corner I was turning. Any thoughts on this?*

Helen Fletcher
Boston, Mass.

The old-type, full-circle horn ring that you could reach in the dark, no matter where the wheels were pointed, was a lot safer. Some of today's half horn rings (and worse still, the ones with two short strips or chrome controls which you depress at the end of the wheel spokes) are pretty silly. The next best thing to a horn ring is an old, old-fashioned horn button.—*Tom McCahill*

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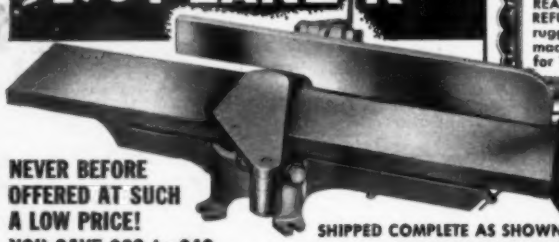

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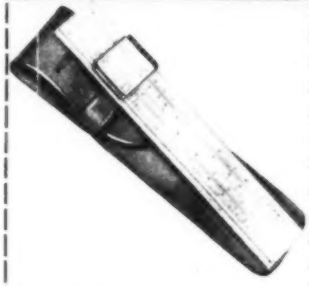

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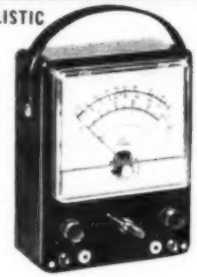

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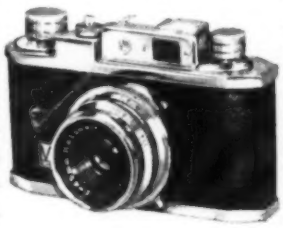

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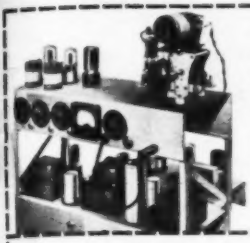
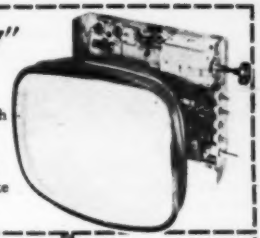


YOU BUILD Broadcasting Transmitter

As part of N.R.I. Communications Course you build this low power Transmitter; use it to learn methods required of commercial broadcasting operators, train for FCC license.

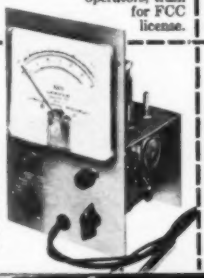
YOU BUILD 17" TV Receiver

You get actual servicing experience by practicing with this complete TV receiver. NRI supplies all parts and everything is yours to keep. Nothing takes the place of practical experience. Kits like this are part of the NRI learn-by-doing method.



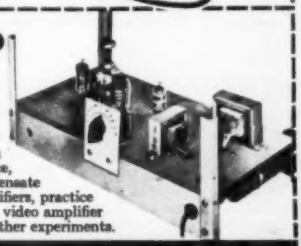
YOU BUILD D'Arsonval Type Milliammeter

Use it to get practical experience, earn extra cash fixing neighbors' sets in spare time. Gain knowledge to help you work in Radio, Television, Hi-Fi. Use it to measure power line frequencies, high audio, etc. Equipment you build "brings to life" things you learn in NRI's easy-to-understand lessons. Send for FREE 64-page Catalog. Shows all equipment you get.



YOU BUILD Signal Generator

NRI sends kits of parts to build this Signal Generator. You get practical experience, conduct tests to compensate Radio frequency amplifiers, practice aligning a typical I.F. video amplifier in TV circuit, many other experiments.



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"After graduating I was a shipboard radio operator. At present I am chief engineer of Station WARA. The NRI Course was a wonderful foundation." RAYMOND D. ARNOLD, Attleboro, Mass.

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